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THE CLINICAL MANIFESTATIONS OF PRIMARY BRONCHIAL CARCINOMA *

ELMER H. FUNK, M.D.
PHILADELPHIA

This report is based on an analysis of the clinical features presented by sixty-one patients with primary carcinoma of the bronchus in whom the diagnosis was verified by histologic examination of tissue removed bronchoscopically (thirty-six cases), surgically (eight cases) or post mortem (twenty cases). In this group were fifty men and eleven women, a ratio of 4.5 men to 1 woman. The youngest patient was a woman, aged 24, and the oldest a man, aged 73. Only two patients were under 35 years of age (24 and 27). Twenty-seven patients (44.2 per cent) were between 35 and 45. The male predominance among men, the incidence after the age of 35, and especially in the decade between 35 and 45, are factors of significance in diagnosis.

The increasing clinical interest in the early diagnosis of primary carcinoma of the lung has been stimulated by the recognition that origin from the larger bronchi occurs in the vast majority of cases, and, therefore, skilful bronchoscopy becomes, in selected cases, the most useful procedure in making a diagnosis.[1]

Weller [2] states that the type of carcinoma that occurs in the hilus, comprising perhaps 90 per cent of all cases of carcinoma of the lung, is practically always bronchiogenic.

The right side was involved in thirty-four and the left in twenty-six instances among the sixty-one patients in whom it was possible to locate the origin of the neoplasm with reasonable accuracy.

CLINICAL MANIFESTATIONS

No set description can be given, since the clinical picture varies greatly, depending on the following factors: (1) the location of the neoplasm and the rapidity of its growth; (2) the degree of bronchial obstruction produced; (3) the presence of secondary infection and suppuration; (4) the pressure on adjacent structures; (5) the occurrence of pleural involvement, which is not infrequently associated with effusion and, (6) the influence of local and general metastases. These factors in varying combinations produce many dissimilar clinical pictures, which may closely resemble other common and rare diseases of the respiratory tract.

The onset of symptoms is usually insidious but may be sudden with pain in the chest, pulmonary hemorrhage, dyspnea, or symptoms resembling an acute bronchitis. Among approximately one third of the patients the onset was not unlike an acute respiratory tract infection, the patient stating that the initial features were "a cold," "cough with fever," "a cough with pain in the side," "acute bronchitis" and "pneumonia." While the early symptoms are usually bronchial, many patients complain early of pain in the chest, which varies in severity from an indefinite discomfort to that resembling acute pleurisy. The relative frequency of the local symptoms in sixty-one patients was as follows: cough, 88 per cent; expectoration, 67 per cent; pain, 72 per cent; hemoptysis, 45 per cent; dyspnea, 50 per cent. The general symptoms of weakness and loss of weight follow, as a rule, the occurrence of the local symptoms and were sufficiently evident as to be noted as a part of the present illness by the patient in 80 per cent of the cases.

The cough does not present characteristic features. It usually occurs early and may be continuous but is not infrequently characterized by periods of improvement and aggravation which are attributed by the patients to attacks of bronchitis. It may be so severe as to interfere with sleep. Wheezing is common and has been mistaken for asthma. In the later stages with extension of the growth and pressure on surrounding structures the cough may resemble that of aortic aneurysm, which may be suspected, especially when hoarseness occurs as a result of involvement of the recurrent laryngeal nerve.

Hoarseness or huskiness of the voice was noted at the time of admission in five patients (8 per cent).

The expectoration may be absent, scant and mucoid, or profuse and purulent in character. Profuse and purulent sputum, suggestive of pulmonary suppuration, was present in one third of our patients. The "currant-jelly sputum" is rarely encountered, and I have seen no cases in which this type of sputum had any diagnostic significance. While careful search of the sputum has been stated in reported cases to reveal occasionally fragments of tumor tissue, I have not been able to make a diagnosis by this method in any of my patients. Tubercle bacilli were not found in any of the numerous specimens of sputum examined, and no evidence of clinically active tuberculosis was found to be associated with the new growth in the present series of patients.

Hemoptysis occurred in approximately one half of the patients. It may occur early or late and varies in amount from streaking of the sputum to frank hemorrhage. In some patients the frequent recurrence of bleeding produces a marked secondary anemia. A large fatal hemorrhage is rare. I cannot recall a death among my patients due to this cause.

* From the Department of Medicine, Jefferson Medical College.

* Read before the Association of American Physicians, Atlantic City, May 6, 1930.

1. McCrae, Thomas; Funk, E. H., and Jackson, Chevalier: Primary Carcinoma of the Bronchi, J. A. M. A. **89**: 1140 (Oct. 1) 1927.
2. Weller, C. V.: Primary Carcinoma of the Lung, Arch. Path. **7**: 478 (March) 1929. This article contains an excellent bibliography.

Mild dyspnea on exertion is common, the more marked forms occurring with bronchial occlusion, or complicating pleurisy with effusion. It may be the first or principal symptom, but more often it develops during the course and in association with other local symptoms. Cyanosis parallels the dyspnea and is explicable by the associated pulmonary complications; marked cyanosis is usually a late event in the disease.

Pain in the chest is not only a common but frequently an early complaint of the patient. In this series it was next in relative frequency to cough. The pain is variously located in the chest and is described as sharp or dull, intermittent or continuous, and tends to become worse as the disease progresses. Dysphagia is usually a late symptom.

The general symptoms, fever, weakness, loss of weight and pallor, are variable in their time of appearance. They usually occur late in the disease. Fever was present in 55 per cent of the sixty-one patients at some time while under observation. It is due to associated bronchitis, pulmonary suppuration, bronchiectasis, bronchopneumonia and pleurisy. The fever may be slight or marked with remissions and intermissions

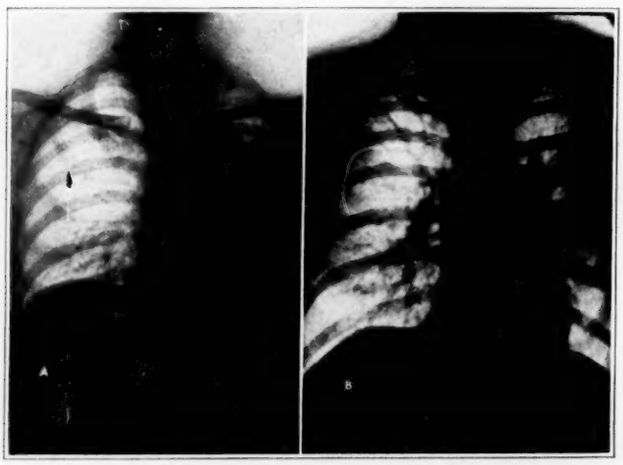

Fig. 1 (case 1).—*A*, obstructive atelectasis of the left lung due to neoplastic obstruction (complete) of the left main bronchus. *B*, expansion of the lung within forty-eight hours after the bronchoscopic removal of obstruction by Dr. L. H. Clerf. The signs of obstructive atelectasis were typical; the cause was not definitely known until the histologic examination of the bronchoscopically removed tissue revealed new growth. (These and the following roentgenograms are by W. F. Manges and J. T. Farrell, Jr.)

associated with chilliness and sweats. The latter occur especially with abscess formation. A rapid pulse is associated with the pyrexia. In the late stages, cachexia may be pronounced.

EXTRATHORACIC METASTASES

Numerous writers have discussed the frequency of metastases to the various organs, especially to the nervous system and skeleton. Any organ may be involved. An early and significant finding clinically is the metastases to the supraclavicular nodes, which, when small, may easily be overlooked. In most instances, in my experience among patients who came to the chest clinic, extrathoracic metastases were late phenomena. Distinct evidence of metastases to the nervous system was present in eight cases (cerebral six, spinal two), or 13 per cent, and to the abdominal organs in four cases of the group of sixty-one patients while in the hospital. There is an important group of patients in whom the extrathoracic metastases obscure the primary bronchiogenic carcinoma. In this connection may be quoted the report of Fried and Buckley,[3] who found central nervous system metastases in fifteen of thirty-seven patients with bronchiogenic cancer. In eleven of the fifteen patients a diagnosis of primary tumor of the brain was made and the bronchiogenic tumor was overlooked. An intracranial operation was performed in eleven patients and a metastatic tumor was removed in ten instances. Fried and Buckley state that when a person of middle age has an abrupt onset of symptoms and signs of a rapidly developing intracranial lesion, a metastatic cerebral lesion should be thought of and that the lungs are the most common site of the primary lesion. A metastasis to the brain may be mistaken not only for a rapidly growing glioma but also for a vascular lesion or an encephalitis.

Among four patients in the series with marked abdominal symptoms due to metastases, in two instances the abdominal symptoms preceded the occurrence of respiratory symptoms, and in one of these an abdominal operation had been performed before admission.

EFFECTS OF PRESSURE

The presence of dilated veins of the head and neck, upper extremities, and over the thorax and abdomen, of laryngeal paralysis, dysphagia and inequality of the radial pulses are usually late manifestations in the course of the disease.

THE PHYSICAL AND ROENTGEN OBSERVATIONS

There are no pathognomonic thoracic signs and those found are in varying combinations dependent on the influence of the various factors mentioned. There may be no abnormal physical observations. Usually, however, the early signs are those of bronchial irritation. Wheezing is common. Unilateral limitation of expansion is the most common sign. In most instances the signs are those of the associated pathologic conditions, bronchitis, obstructive atelectasis, obstructive emphysema, abscess, bronchiectasis, and pleurisy with or without effusion.

The roentgenologic evidence may be most valuable in determining the presence and location of the tumor, especially when the hilar mass is sufficiently large and not obscured by the many secondary pathologic changes that may occur in the lung and pleura (figs. 1 to 6). When these are present the roentgen picture may resemble numerous other pulmonary lesions.[4]

BRONCHOSCOPIC EXAMINATION

The diagnostic significance of the bronchoscopic observations has been described by Chevalier Jackson.[1] Briefly, it may be stated that this procedure, which represents the most recent and important advance in thoracic diagnosis, is the only method by which an early diagnosis of bronchial new growth can be made with reasonable certainty in the vast majority of patients. Without bronchoscopy, the diagnosis must often remain in doubt until extrathoracic metastases occur or tissues are removed at operation or at autopsy. Bronchoscopy has taught physicians to suspect new growth more frequently, especially in adults with obscure pulmonary lesions, particularly when the signs of bronchial obstruction are present.

DIAGNOSIS

The two essentials are (1) to recall the possibility of bronchiogenic carcinoma in adults with obscure pul-

3. Fried, B. M., and Buckley, R. C.: Primary Carcinoma of the Lungs: IV. Intracranial Metastases, Arch. Path. **9**: 483 (Feb.) 1930.
4. Farrell, J. T., Jr.: Roentgen Diagnosis of Intrathoracic Neoplasms, Radiology **13**: 1 (July) 1929.

monary disease, and (2) to make a complete study, including a consideration of the history, physical signs, sputum, roentgenographic and bronchoscopic observations. There are certain conditions that cause confusion but a complete study should exclude them in the majority of cases.

Tuberculosis.—The chronic cough, expectoration, hemoptysis, fever and wasting are most frequently mistaken for tuberculosis, especially when the bronchiogenic cancer invades the upper lobe. Basal growths with the apexes clear cause less difficulty. The sputum studies are important, and it is a good rule to question the diagnosis of tuberculosis when in the presence of a persisting gross lesion the sputum contains no tubercle bacilli (fig. 5).

Bronchial Obstruction.—The recognition of the presence of bronchial obstruction and the associated lesions of atelectasis, emphysema, bronchiectasis and abscess are secondary in importance to the determination of the cause of the obstruction. Foreign bodies and aortic aneurysm may be recognized by the history, physical signs and roentgen observations. On the other hand, neoplastic obstruction, while frequently suspected in adults of the cancer age with pulmonary lesions of obscure etiology, may often fail to be recognized unless bronchoscopic studies are made (fig. 1). Benign new growths and obstruction due to inflammatory changes and cicatricial stenosis can be differentiated only by bronchoscopy. Aortic aneurysm should be excluded before bronchoscopy is done. Carcinoma of the esophagus, as a result of the overflow of its contents and pressure on or penetration into the air passages may give rise to distinct respiratory symptoms. In primary bronchial cancer the reverse process may produce esophageal symptoms. A careful study of the order of the appearance of symptoms and of the swallowing function and the roentgen and direct endoscopic examinations should establish the diagnosis. Tracheal cancer may give rise to symptoms not unlike those in bronchial

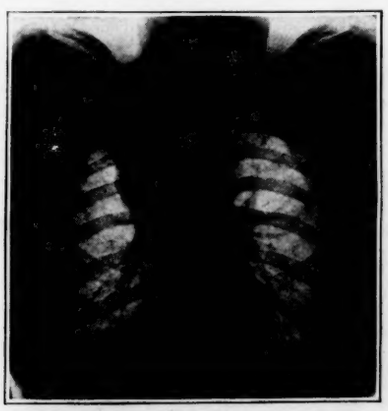

Fig. 2 (case 2).—Primary carcinoma of the bronchus. Nodular mass at the right hilus with atelectasis of upper portion of right lung due to bronchial obstruction by a neoplasm completely occluding the bronchial lumen.

involvement, and only by bronchoscopy can differentiation be made.

Pulmonary Abscess.—The differentiation of non-carcinomatous from carcinomatous pulmonary abscess may present unusual difficulties. Several aspects of the problem involved are given in the brief case reports in the legend of figure 3. Generally speaking, a pulmonary abscess of obscure etiology occurring in a man past 30 or 35 should be suspected of a malignant origin. Bronchoscopy will usually settle the diagnosis. That errors may occur in spite of the most complete study is exemplified by the following patient: A man, aged 51, had been ill for one year with cough, increasing expectoration, dyspnea, huskiness of the voice, and loss of weight. The physical and roentgen observations indicated an extensive lesion in the lower portion of the right upper lobe. The fingers were clubbed. The roentgenogram showed a distinct large abscess cavity

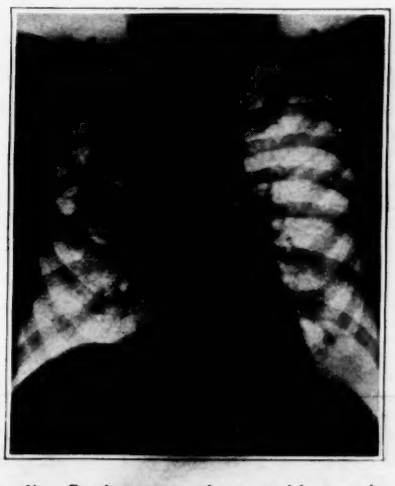

Fig. 3 (case 3).—Carcinomatous abscess, with a cavity presenting a fluid level in the right upper chest, in a man, aged 51, who had had a chronic cough with scant mucoid expectoration since he had had influenza twelve years before. Seven months before, a severe pulmonary hemorrhage occurred, and since then the cough had become more severe and productive of a fetid mucopurulent sputum. Other symptoms were pain in the right side of the chest, fever, weakness and loss of weight. The fingers were distinctly clubbed. The sputum showed no tubercle bacilli. The physical signs and roentgen observations on admission indicated an abscess with cavitation in the upper part of the right lung. The left lung was clear and there were no demonstrable extrathoracic lesions. Clinically and bronchoscopically, the condition was considered to be pulmonary abscess. At operation, Dr. J. B. Flick, suspecting new growth, removed a section of tissue which Dr. B. L. Crawford found to be a squamous-cell carcinoma. At autopsy a primary cancer of the bronchus (epithelioma), pulmonary abscess, local metastases, but no extrathoracic metastases were found. By contrast, another patient with a similar history and observations was not studied bronchoscopically because all the available evidence seemed to point clearly to a pulmonary abscess. At operation Dr. Flick suspected neoplasm and the tissue removed showed squamous-cell cancer. At autopsy the neoplasm was found to originate from the left main bronchus, and in retrospect it was evident that a positive preoperative diagnosis could have been made had a bronchoscopy been done.

with a fluid level not unlike that shown in figure 3. No tubercle bacilli were found in the sputum. A bronchoscopic examination by Dr. L. H. Clerf revealed stenosis of the right bronchus, probably neoplastic, and a histologic study by Dr. B. L. Crawford revealed carcinoma. Autopsy revealed a primary carcinoma of the head of the pancreas with metastases to peribronchial nodes and to various other organs. The pulmonary abscess was secondary to a malignant bronchial obstruction, which in turn was secondary to the primary abdominal neoplasm. However, carcinomatous pulmonary abscess is associated in the vast majority of instances with primary rather than secondary neoplasms of the bronchus and lung.

Syphilis.—Pulmonary syphilis is rare, but it may simulate bronchopulmonary new growth. The history, atypical pulmonary signs, concomitant evidence of syphilis elsewhere, the positive Wassermann reaction and the therapeutic test are criteria useful in the diagnosis of pulmonary syphilis, which is usually made by exclusion. The two conditions may coexist, i. e., bronchial cancer and latent syphilis. Curiously, in the series of sixty-one patients the routine Wassermann test was positive in only two instances (fig. 6). Bron-

choscopy will usually settle the differentiation between the two lesions.

Pneumonoconiosis.—Long exposure to inorganic dust may give rise to localized pulmonary changes which, on roentgen examination, may suggest an associated neoplasm (fig. 4).

Pleurisy.—The pleura is almost always involved at some time during the course of bronchiogenic cancer, and at autopsy metastatic pleural lesions are frequently found. Reference has been made to the frequency of pain in the chest, especially early in the disease. An exudative pleuritis, simple hemorrhagic or purulent, may mask clinically the underlying bronchiogenic neoplasm. Effusion was present in sixteen of the sixty-one patients (26.2 per cent); serous or serofibrinous in three, purulent in three, and hemorrhagic in ten. While the dulness and the distant breath sounds of atelectasis may, if the displacement phenomena are not carefully studied, mislead to a dry tap, it is important to remember that not infrequently effusion associated with bronchiogenic carcinoma does not cause distinct displacement of the heart and mediastinum to the opposite side. In other words, the presence of an effusion is often difficult to determine apart from a diagnostic pleural puncture. The laboratory examination of the fluid has not been helpful in diagnosis. The hemorrhagic character is suggestive. The careful clinical study, suggestive features such as an undetermined cause, persisting pain, dyspnea out of proportion to the pleural involvement, symptoms of associated and persistent bronchial irritation, atypical roentgen observations and a negative tuberculin test all suggest the need for complete diagnostic study which, when bronchoscopy is included, may reveal the obscure bronchiogenic cancer.

Miscellaneous.—Not only the common but the rare thoracic diseases, for example, the various mycoses, may at times require differentiation from bronchiogenic carcinoma.

PROGNOSIS

Among twenty patients coming to autopsy, death occurred within one year from the onset of the symptoms in eleven instances, and within one and a half years in all except three instances. Among some of the patients, and especially among those given roentgen therapy, the duration has been much longer, one patient remaining well after six years. This patient is an exception to the generally fatal outcome within a relatively short period of time.

It is to be hoped, since early diagnosis has now become possible through the aid of the bronchoscopist and the pathologist, that the advances in thoracic surgery or the development of a more satisfactory cancer therapy may render prognosis less unfavorable than it is at present.

269 South Nineteenth Street.

Fig. 4 (case 4).—Pneumonoconiosis and bronchial cancer in a miner, aged 38, who had had a "chronic bronchitis" for many years. Three months before he was seen the cough and expectoration increased and the sputum was blood tinged. For a long (?) period the patient had noted an increasing shortness of breath on exertion and an indefinitely located dull pain in the chest. The physical and roentgen observations indicated generalized pulmonary changes with a massive solid lesion in the right upper part of the chest. The trachea was displaced to the right. The sputum showed no tubercle bacilli. The tentative diagnosis was pneumonoconiosis with either localized fibrosis or atelectasis of the right upper lobe due to bronchial obstruction. On bronchoscopic examination Dr. L. H. Clerf found an obstructing neoplasm and a removed section of tissue revealed a primary bronchial carcinoma. Subsequently extrathoracic metastases and death occurred.

Fig. 5 (case 5).—Bronchial epithelioma in a man, aged 67, who had been ill one year, the onset following "pneumonia," which lasted one month (?). He was subsequently treated for tuberculosis. Cough, expectoration, hemoptysis, pain in the chest and shortness of breath were the local symptoms. Fever was present at the onset and at intervals, and a loss of 35 pounds (16 Kg.) occurred during the year. Sputum examination showed no tubercle bacilli. The physical and roentgen observations indicated a gross lesion in the lower right part of the chest. These suggested fibrosis of the lung with pleural thickening and contraction. There was no evidence of extrathoracic lesions. The left lung was clear. A tentative clinical diagnosis of pulmonary fibrosis and bronchiectasis was made and the patient referred to Dr. L. H. Clerf for bronchoscopic study. A section of tissue was removed bronchoscopically from the right lower lobe bronchus and the histologic examination showed a squamous-cell carcinoma (B. L. Crawford).

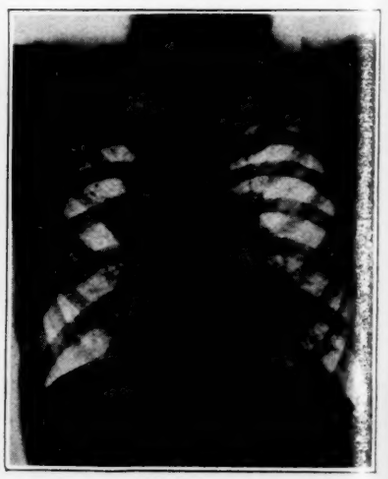

Fig. 6 (case 6).—Primary cancer of the right bronchus in a man, aged 41, who had previously been in good health except for recurring bronchitis, and had noticed two weeks before admission a distinct and persisting pain in the right part of the back. Shortly afterward cough, expectoration, shortness of breath on exertion, and weakness with a loss of 15 pounds (6.8 Kg.) developed. The examination on admission showed distinct limitation of motion in the right side of the chest, diminished breath sounds in the lower right part of the chest, and the generalized signs of bronchitis. The roentgenogram revealed a mass in the region of the right hilus. There were no extrathoracic lesions. The Wassermann and Kahn reactions were positive. Pulmonary syphilis and new growth were diagnostic possibilities. A bronchoscopic examination by Dr. L. H. Clerf revealed a neoplasm of the right bronchus, and a section removed for microscopic study by Dr. B. L. Crawford showed carcinoma.

Pasteur and Crystallography.—If I have a regret, it is that I did not follow that route, less rude it seems to me, which would have led, I am convinced, to wonderful discoveries. A sudden turn threw me into the study of fermentation, fermentations set me at diseases, but I am still inconsolable to think that I have never had the time to go back to my old subject.—Pasteur, Louis, as quoted by W. W. Oliver in "Stalkers of Pestilence," New York, Paul B. Hoeber, Inc., 1930.

SUBTOTAL GASTRECTOMY FOR DUODENAL ULCER

TEN YEARS' EXPERIENCE AND CLINICAL END-RESULTS *

ALFRED A. STRAUSS, M.D.
LEON BLOCH, M.D.; J. C. FRIEDMAN, M.D.
JACOB MEYER, M.D.
AND
MORRIS L. PARKER, M.D.
CHICAGO

This study is based on the results of 221 subtotal gastrectomies for duodenal ulcer, and represents the combined opinions of a stomach study group composed of surgeons, internists, roentgenologists, pathologists, research fellows, and a member of the social service department. The social service department was added for the purpose of studying the economic conditions of peptic ulcer patients before and after medical treatment, as well as before and after operation. All patients were admitted, not as medical or surgical, but for the stomach group to dispose of, depending on the facts disclosed by the group study. At first there were differences of opinion as to the disposition of these cases, but as we learned from our experience, these differences disappeared. Of late years there has been little question as to whether a patient should be continued on medical treatment or should be operated on.

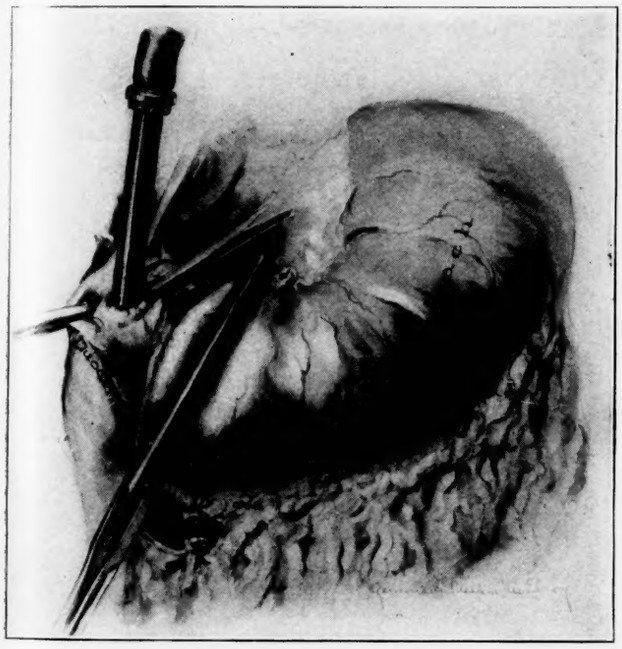

Fig. 1.—After the blood vessels have been divided and ligated in the region of the pylorus and duodenum, the anterior duodenal wall has been opened and the duodenal contents are being aspirated by suction.

We have taken the point of view that all chronic gastric ulcers should be treated surgically and never medically for the following reasons: There is not a known means of telling whether a gastric lesion is an ulcer or a beginning carcinoma until serial sections are studied microscopically. Until some one discovers a serologic test for carcinoma, such as there is for syphilis, we feel that these lesions are definitely surgical. To this we must add associated factors of fatal or near fatal hemorrhage and penetration into the pancreas and lesser peritoneal cavity, with their most severe symptoms and bad results. Finally, a comparison of the clinical end-results and mortality of medical treatment with from 5 to 9 per cent mortality from subtotal gastrectomy brings the argument all in favor of surgery.

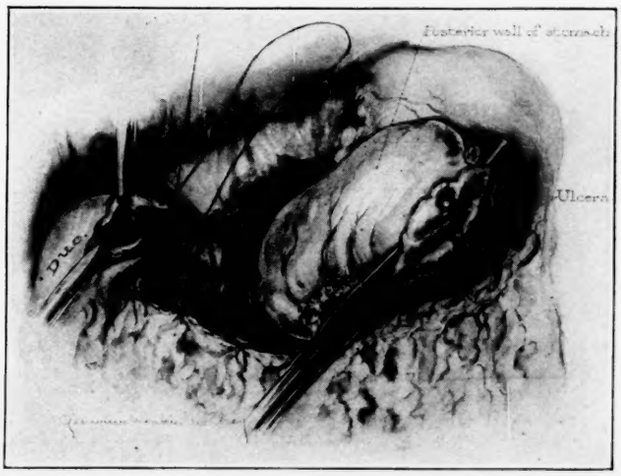

Fig. 2.—The duodenum has been cut through beyond the ulcer and is being closed with a silk suture, the Connell stitch being used.

DUODENAL ULCER

Our attitude toward the type of therapy for duodenal ulcer is quite different, first, because of the extreme rarity of carcinoma of the duodenum, and, secondly, because of the spontaneous tendency of the ulcers on the anterior wall of the duodenum to heal.

We feel that every duodenal ulcer should have the benefit of at least one thorough medical treatment, irrespective of the patient's economic condition. How long this should be continued and how often such medical treatment should be repeated depends on the symptoms he has after medical treatment, the patient's economic condition, and the character of the lesion as shown by a roentgenogram portraying a cloverleaf deformity.

Our experience has been that in all cases in which the ulcer is not bleeding or perforating, the patients are usually relieved of their symptoms after two weeks' rest in bed, and the usually accepted routine medical management. We have come to the conclusion that the most important factors in medical therapy are rest in bed and relief from the stress, strain and worry that come in daily life. The majority of the patients who come to the hospital, who have never had medical treatment and who are relieved at the end of two weeks, do not want surgery and usually decide to go home. We attempt to follow these cases in the outpatient department. Those who have had two or more treatments in our group or at other medical clinics know that this relief is only temporary, and usually prefer

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

* From the Julius Rosenwald grant to the Stomach Group of the Michael Reese Hospital. The organization of the Stomach Group is as follows: Alfred A. Strauss, M.D., Ralph B. Bettman, M.D., Morris L. Parker, M.D., and Bernard Portis, M.D., surgery; Leon Bloch, M.D., J. C. Friedman, M.D., and Jacob Meyer, M.D., medicine; William Thalhimer, M.D., and Otto Saphir, M.D., pathology; and Robert A. Arens, M.D., roentgenology.

surgery to repeated medical treatments. For the ordinary wage earners who have had a thorough medical treatment and who have a return of symptoms, so that they are unable to earn a living, we advise operation rather than further medical management. We have learned from our social service department that by far the largest number of such patients, in order to undertake a second medical treatment, would need the assis-

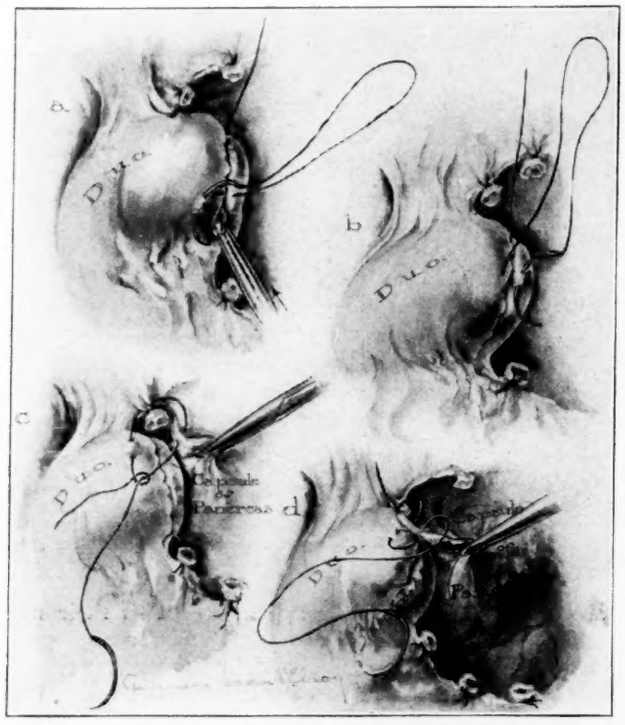

Fig. 3.—The duodenal stump is closed with two rows of silk sutures, first a Connell and then a Cushing stitch being used. The suture line is then covered with the capsule of the pancreas.

tance of their relatives or charitable organizations to take care of the dependent members of their family. This is another factor that influences us to suggest surgery. On the other hand, if the patient is wealthy and the ulcer is not complicated, we feel that he can have as many treatments as he desires, always informing the patient of the possibility of a fatal hemorrhage or perforation. If the roentgen examination shows a clover-leaf deformity, little can be expected from medical treatment. While we willingly give the patient the benefit of such treatment, we do not hesitate to tell him that the chances for cure by medical management, for any length of time, with such a lesion, are practically nil. The reason is that the majority of clover-leaf deformities of the duodenum are due to an ulcer on the posterior duodenal wall, penetrating into and adhering to the pancreas. This penetration produces contraction of the duodenum, the surrounding mesentery, hepatoduodenal ligament, and capsule of the pancreas with resulting dilatation, formation of diverticula and deformity of the duodenum about the point of contraction, thus explaining the clover-leaf deformity as seen in roentgenograms and at operation.

Our experience has been that these ulcers on the posterior wall do not heal, and for this reason we give the foregoing prognosis concerning medical treatment in such cases. These patients suffer not only from the ulcer that is present but also from the mechanical difficulty that the stomach has in forcing the food through the contracted duodenum.

In young patients who give a history of severe hemorrhage and come in with a second hemorrhage, we advise immediate blood transfusion. If bleeding stops, a subtotal gastrectomy in from ten to fourteen days is indicated. A second blood transfusion is given just before operation, if conditions warrant, and a third, if necessary, immediately after. Older patients, from 50 to 70 years of age, who come in with a severe hemorrhage usually do not stop bleeding, because of a more or less advanced arteriosclerosis. A large percentage of these patients need an operation within from twelve to twenty-four hours, preceded and followed by blood transfusion. Patients who have acute symptoms of perforation we have tried to keep on medical management from ten to fourteen days after the acute symptoms have subsided, and then subtotal gastrectomy is indicated. Those who have retention from anatomic obstruction we also try to hold from ten to fourteen days, aspirating the stomach dry several times daily. This decreases the size of the stomach and relieves the inflammatory process in the duodenum and stomach wall. During this time the patients are flooded with saline solution and dextrose subcutaneously, and a blood transfusion is given just before operation.

The social service department reports that a large number of these patients, even before medical treatment, are on a 50 per cent earning basis and between medical

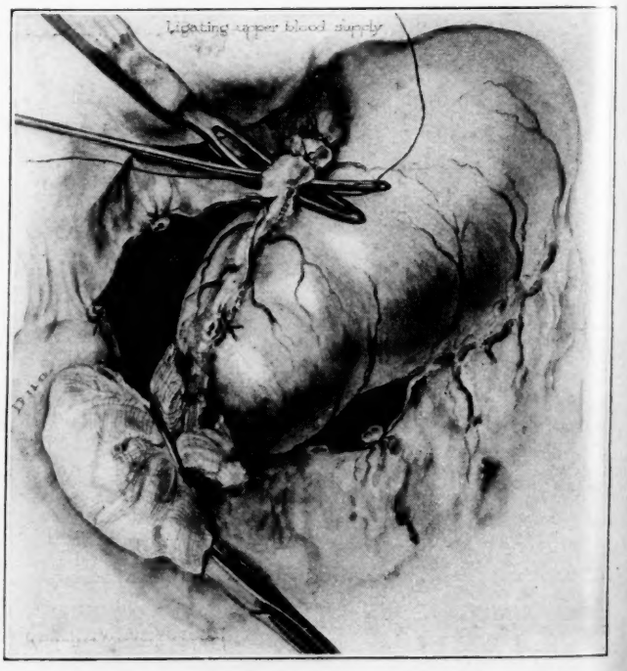

Fig. 4.—After the omentum has been separated from the greater curvature of the stomach until about 60 per cent of it is free, the blood supply on the lesser curvature is ligated three times at the re-entrant angle and divided between the second and the lower suture.

treatments 50 per cent of them are on a half time working basis. Of those patients who have had several medical treatments when coming to operation, 65 per cent have not been able to work at all. The types of occupation that our patients are engaged in may be classified as moderately hard labor as they are chiefly bakers, tailors, small shopkeepers and pedlers. Patients who have been treated by subtotal gastrectomy are on

a full time working basis in from four to six months in 95 per cent of the cases.

Pathology.—The pathologic changes in living tissue as seen at operation are as follows: On opening the abdomen and lifting the duodenum into view, one usually sees punctiform hemorrhages on the anterior wall similar to the conjunctival injection as caused by a cinder in the eye. The punctiform hemorrhage is

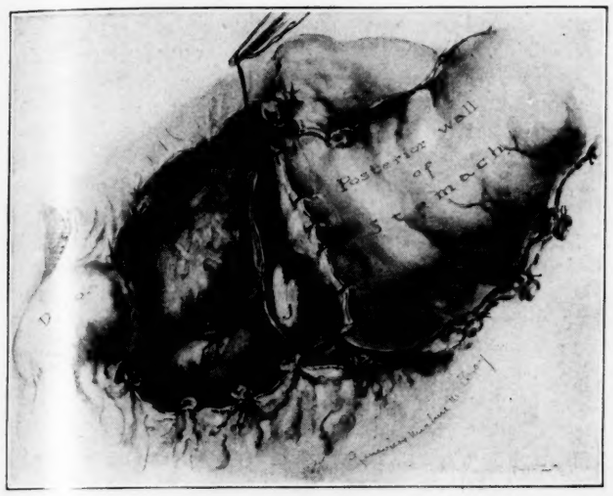

Fig. —After the transverse mesocolon has been split to the left of the middle colic artery, the left leaf of it has been sutured to the posterior wall of the stomach. The jejunum is being brought through the slit.

pathognomonic of duodenal ulcers and occurs by simply exposing the duodenum to the air. On further irritating the area with the gloved hand or sponge, it becomes more marked. This is due to the increased vascularity produced by the chronic duodenitis. We feel so positive about this punctiform hemorrhage that without it we doubt the presence of an ulcer. If a clover-leaf deformity is present in the roentgenogram one can see the corresponding deformity clearly in the duodenum. There is usually a contraction, and one or two diverticula above the contraction. On opening the lesser peritoneal cavity and placing the index finger along the posterior wall of the stomach and duodenum, one usually finds the lesser peritoneal cavity more or less obliterated, because of adhesions about the lower third of the posterior wall of the stomach, the mesocolon, and the capsule of the pancreas. The head of the pancreas is harder than normal and tightly adherent to the pyloric ring or first portion of the duodenum. The latter condition always means ulcer of the posterior wall penetrating into the head of the pancreas. The surrounding peritoneum of the duodenum and the hepatoduodenal ligament are adherent and markedly thickened as the result of the existing inflammatory process. The periduodenal peritoneum sometimes becomes very thick and peels like a banana. The stomach wall is thickened in its lower third and sometimes its lower half, and if the deformity of the duodenum is very severe the stomach is usually hypertrophied and edematous in appearance, giving a clinical picture of subacute and chronic gastritis. We have found that more than 70 per cent of our patients operated on have a penetrating ulcer of the posterior wall.

In addition to the marked and severe duodenal ulcer there is often associated a cholecystitis and pancreatitis, aside from gallstones.

Keeping the foregoing pathologic conditions in mind, we have formulated the two following basic laws for the successful surgical treatment of ulcers:

1. That all pathologic tissue should be removed. This includes the first portion of the duodenum and the lower half of the stomach.

2. That the stomach must have a rapid or quicker than normal emptying time.

The clinical end-results are in direct proportion to the fulfilment of these two laws. Subtotal gastrectomy is the only operation that fulfils these laws; namely, it removes the pathologic conditions and usually gives the stomach an emptying time of from thirty to fifty minutes, which we think is ideal.

We have noted that if too small an amount of stomach (only the lower third) is removed, the stomach does not empty very rapidly. The same may be said when too much (from 75 to 80 per cent) is removed. After observing quite a large number of cases of low and high gastrectomies, we found that when about 60 per cent of the stomach is removed the stomach empties most quickly and best. This is due to the fact that the highly peristaltic portion of the stomach is removed, which allows only small portions of food to pass on at a time. The upper portion of the stomach has a more uniform constant contraction, keeping up a more constant intragastric tension, thus forcing the food into the jejunum like squeezing water from a sponge.

For those who object to the removal of the lower 60 per cent of the stomach for duodenal ulcer and agree that this is the proper operation for gastric ulcer, we answer that there is nothing of vital importance in the physiologic function of the first portion of the duodenum. If the principle of partial gastrectomy is correct

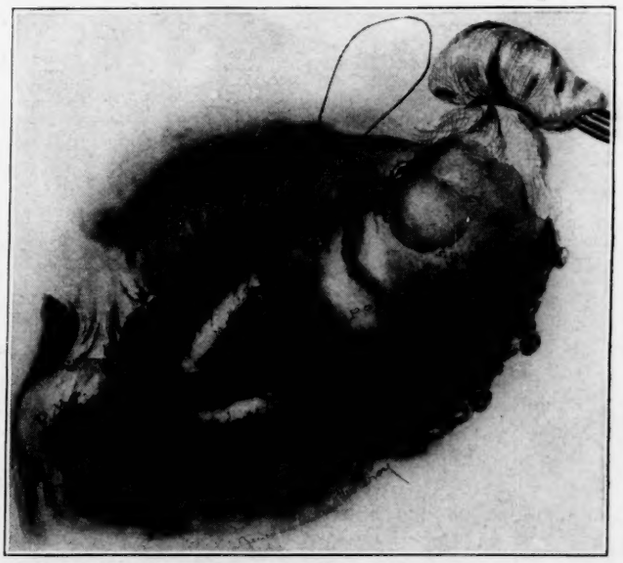

Fig. 6.—First row of posterior wall sutures being applied: Anastomosis of jejunum is begun about 5 inches beyond the ligament of Treitz, the proximal end being placed at the lesser curvature.

for gastric ulcer it must be doubly correct for duodenal ulcer. The latter produces the greatest number of symptoms and the largest amount of irritability in the stomach. It can easily be compared to a patient who needs an amputation of his foot through the ankle joint. Most surgeons surely will amputate higher and sacrifice the lower third of the leg so as to insure the patient a better function with an artificial leg. We admit that the lower third of the leg is quite normal, but the patient

can walk much better with the higher amputation. So we feel quite certain, from our experience, that the patient can eat much better with one half of a stomach, from which all the pathologic tissue has been removed, than with a whole stomach in which a marked duodenal ulcer is present.

In subtotal gastrectomy, when the stomach does not empty quickly, the patient is apt to have symptoms

Fig. 7.—*a*, second row of posterior wall sutures is begun, muscularis being sewed to muscularis; *b*, mucosa of stomach incised and gastric contents aspirated.

such as he would have had from an unsuccessful gastro-enterostomy, while if the stomach empties in from thirty to fifty minutes the patient is usually symptom free. The various pyloroplasties, such as the Finney, Judd, Balfour, Horsley and Heineke-Mikulicz types, remove the anterior wall ulcer but do not affect the most important lesion, which is the ulcer on the posterior wall. This operation does not remove all of the pathologic condition, and again sends the physiologic processes of digestion through the inflamed duodenum and keeps the inflammatory process, as well as the associated cholecystitis and pancreatitis, active. A well functioning gastro-enterostomy sends the physiologic processes of digestion, most of the time, through the left portion of the stomach and puts the right side, the duodenum, gallbladder and pancreas, at rest. In most instances it would be a satisfactory operation, if it did not produce gastrojejunal ulcer, a much more serious lesion than the original duodenal ulcer.

Gastro-enterostomy should not be performed in acute duodenal perforation, since we have learned that a large number of these patients develop gastrojejunal ulcers, which seem to be more prevalent in this type of case than in any other. We have found this to be true not only in our own cases of this type but also in the cases in which operations were performed in other clinics. If a simple closure of the perforation is done, a large percentage of patients come back with an extensive penetrating ulcer, obstructive in character. Gastrectomy is not to be thought of, in our judgment, in the presence of an acute perforation. We prefer to do a simple excision of the ulcer and infiltrated area with the anterior portion of the pyloric ring, leaving the posterior wall of the stomach and duodenum intact, closing the resulting defect after the method of Judd or Horsley. This removes the pyloric sphincter, leaving a large opening at the point of anastomosis, and the results have been highly satisfactory.

The question now arises as to how often gastrojejunal ulcer occurs following gastro-enterostomy. It is difficult to get an accurate percentage of the occurrence of gastrojejunal ulcers, as it must be admitted that, in addition to the known number of such cases, some gastro-enterostomized patients, with symptoms, who are having medical treatment, are actually suffering from a gastrojejunal lesion. The percentage of gastrojejunal ulcers as reported from various clinics is: Berg and Lewisohn, 33 per cent; Bier's clinic, 28 per cent; Payr's clinic, 30 per cent; Hochenegg's clinic, 22 per cent; von Haberer, 16 per cent; Bastianelli, 25 per cent. It can readily be seen from these reports from various nations that there is little national or racial predisposition to the occurrence of gastrojejunal ulcer. Conservatively, the percentage of recurrences following gastro-enterostomy must be somewhere between 10 and 20 per cent.

We feel that the mortality and end-results of multiple operations for gastrojejunal ulcer plus the original mortality of gastro-enterostomy is greater than the mortality of subtotal gastrectomy, and the clinical end-results are far better in the latter operation. We therefore have come to the conclusion, in our stomach study

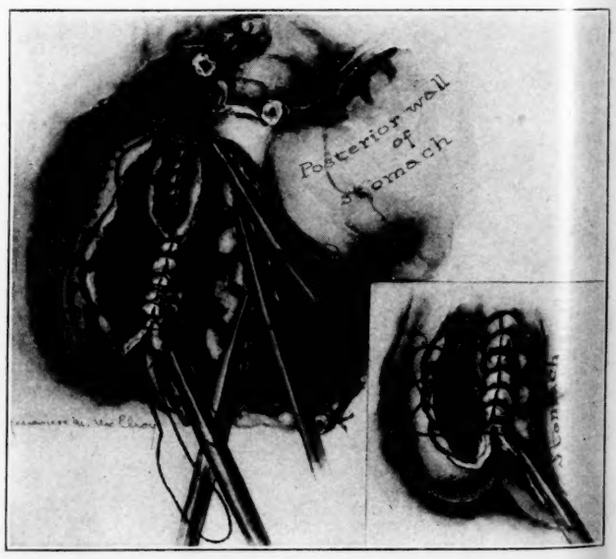

Fig. 8.—Third row of posterior wall sutures is applied, beginning at the middle, and is continued to the greater and lesser curvatures, an interlocking stitch being used.

group, that when surgery is indicated, with few exceptions we prefer subtotal gastrectomy or no operation at all. We would rather continue the patient on medical treatment than to subject him to a major operation that will give him a gastrojejunal ulcer, at least one out of every ten times, or to a pyloroplasty which will give him only partial relief from his symptoms. We have reserved gastro-enterostomy as a surgical measure for

tuberculous patients and others with severe pathologic changes in the lungs, because in a large number of these cases a fulminating tuberculosis or embolic pneumonia will develop if gastrectomy is performed. During this ten year period we have performed only twenty-nine gastro-enterostomies for duodenal ulcer where pulmonary disorders were present.

Early in our experience in cases in which a marked cholecystitis and pancreatitis were present, we preferred

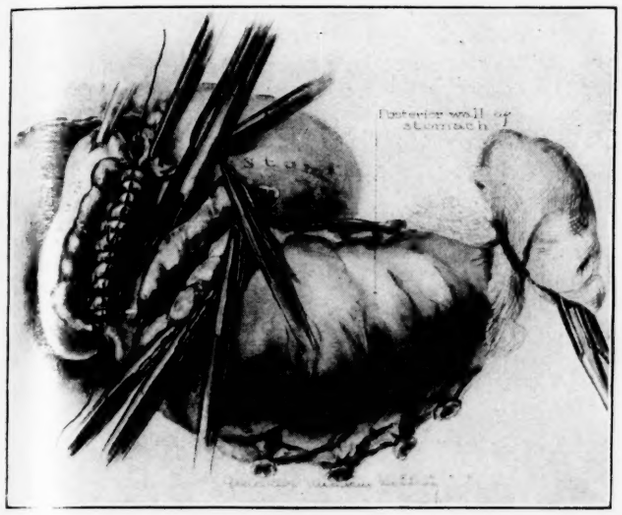

Fig. 9.—The stomach is now amputated from the anterior wall. All bleeding points are clamped and ligated.

cholecystectomy and a common duct drainage and left the ulcer alone, only to have to do, later, a subtotal gastrectomy. Later we performed cholecystectomy and gastro-enterostomy in six such cases; three of these patients came back with a gastrojejunal ulcer. At a later time we operated in six cases in which we did a cholecystectomy and subtotal gastrectomy for ulcer at the same sitting. Though we had no mortality in these six cases, we found in doing so much surgery at one time that the postoperative course was too stormy, making the risk too great. We finally decided, in this type of case, in which a cholecystitis and ulcer were present, to do a subtotal gastrectomy only and not interfere with the gallbladder. We have noted that in practically all these cases in which no stones were present the patients became free from their gallbladder symptoms after subtotal gastrectomy. This can easily be explained by the fact that in gastrectomy the duodenum is closed off. The physiologic process of digestion is sent down the left side, stopping the irritation of digestion in the duodenum, gallbladder and pancreas, thus allowing the mild infection in these two remaining organs, namely, the gallbladder and pancreas, to subside.

As to the relationship of the appendix to duodenal ulcer, we have never removed the appendix in subtotal gastrectomy. In only two cases did we have to operate later for a subacute appendicitis. This would lead us to infer that the appendix plays only a minor rôle in the causation or aggravation of duodenal ulcer.

Surgical Technic.—In doing a subtotal gastrectomy we use a no-clamp method of the Polyá type.

Postoperative Complications.—Pneumonia and atelectasis are the most important and the most serious complications with which we have to deal. They often are noticed in the first twenty-four hours as an embolic process or a collapse of the lung, with high temperature, rapid pulse and rapid respirations. Cases of pulmonary infarcts occur also within twenty-four hours after operation. In our 221 cases, we had 26 cases of pneumonia, of which 13 were of a very mild type, lasting only about one to two days and, no doubt, of an atelectatic nature. Of the remaining 13 cases 5 ended fatally.

Symptoms of regurgitation that were not due to mechanical obstruction occurred in fourteen cases. These symptoms we believe are probably due to a disturbance in the neuromuscular mechanism. This condition usually corrects itself in about four days. A Rehfuss tube is passed into the stomach, through which the stomach is aspirated every two hours. If no more than from 60 to 90 cc. is aspirated each time, one can be sure that some of the secretions are passing through the stoma. At the end of forty-eight hours we inject through this tube 2 ounces (60 cc.) of water every hour, and aspirate every two hours. If there is less returned than the amount injected, one can be certain that this is not a mechanical obstruction and that it will correct itself. In four cases these symptoms persisted up to the third week, but at the end of ten days fluoroscopic examination revealed that some of the barium was passing through. One could infer that this disturbance was neuromuscular in origin. All of these cases were normal between the third and fourth weeks. One might be quite apt to mistake this condition for a mechanical

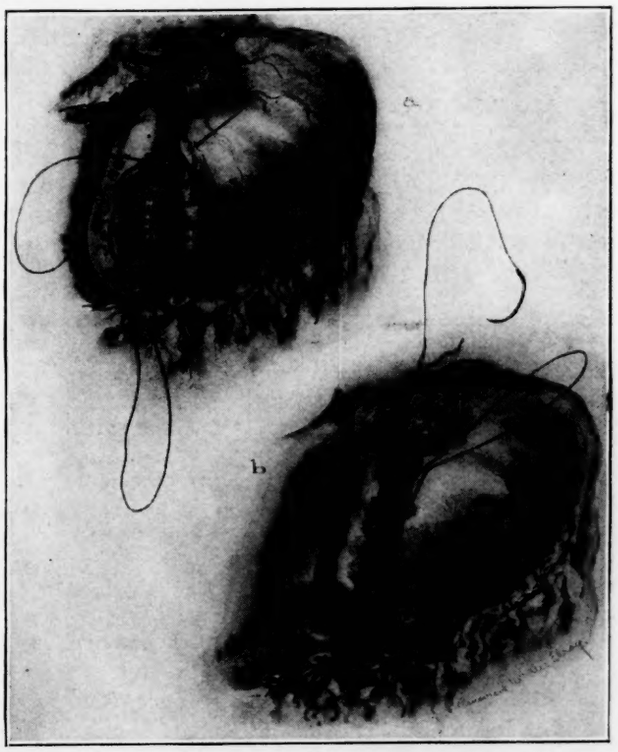

Fig. 10.—*a*, a continuous over and over suture is used to close the anterior wall; *b*, a seroserous Cushing stitch on the anterior wall complete the anastomosis.

obstruction. We are sure that two cases in which we reoperated at the end of ten days were of this type and were not mechanical, for little was found to account for the obstruction.

True mechanical obstruction of the outlet of the anastomosis has not been common. We have found it in four cases, in three of which recovery took place.

However, one of the patients who recovered from the obstruction died two months later of an acute fulminating pulmonary tuberculosis. These obstructions at the outlet of the stomach are never an emergency as long as a Rehfuss tube is kept in the stomach. It is best to give the patient saline solution and dextrose subcutaneously, plus a blood transfusion for food value, until about the tenth day, when intervention should be

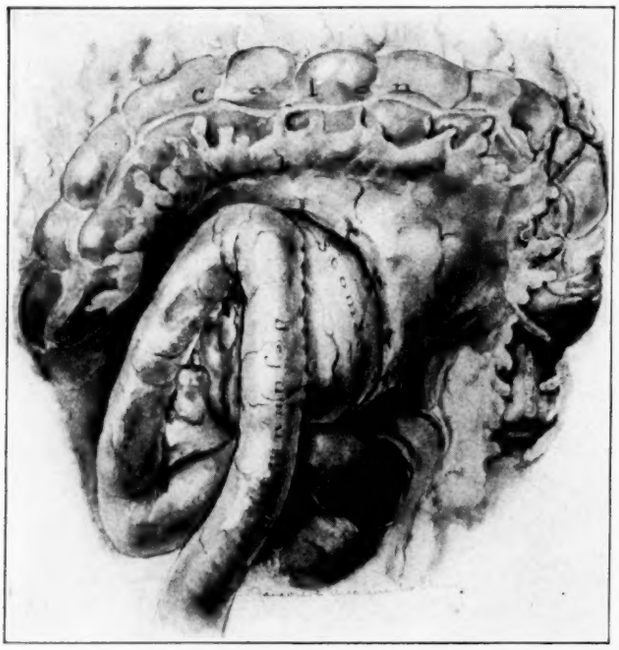

Fig. 11.—Right half of mesocolon is sutured to anterior wall of stomach, high above the anastomosis, and shows stomach and anastomosis well below mesocolon.

considered. Usually the efferent loop of the anastomosis is mildly obstructed, owing to an exudate or constriction by a small piece of omentum which can be released easily. In order to insure the patient's future feedings, a Rehfuss tube with a wire is passed by mouth into the stomach and guided by the operator through the anastomosis to three or four feet below the outlet of the stomach. The patient then can be fed immediately and in a few days he can take food by mouth. If it passes through, the tube can be left in for several days longer and then removed in perfect safety.

Peritonitis has been an extremely rare complication in our series. One case was due to a perforation following a phlegmon of the gastrectomized stomach. The second was a peritonitis deformans in which several operations were done in an attempt to relieve the obstruction.

We have had one case of cerebral hemorrhage with right hemiplegia.

We have had no cases of fatal pulmonary embolism.

We have seen only one subdiaphragmatic abscess associated with empyema in this series.

One patient developed an abscess in the lung and died four and one-half months after operation.

In the first fifteen cases of our series in which a low resection was performed there were two gastrojejunal ulcers which were later reoperated on; a high subtotal gastrectomy was done, and both patients made an uneventful recovery.

Mortality.—We have done 221 gastrectomies for duodenal ulcer, with 12 deaths, a mortality of 5.4 per cent. An analysis of this mortality shows that five patients died of pneumonia; one of a secondary perforation due to phlegmon of the stomach; one as the result of a subdiaphragmatic abscess with empyema; one from acute fulminating pulmonary tuberculosis two months after operation; one from cerebral hemorrhage with right hemiplegia, and one from coronary sclerosis with angina pectoris. This patient had anginal attacks previous to the operation, but they were not recognized as such until twenty-four hours before death. The observations were confirmed by autopsy. One patient died from peritonitis deformans following repeated operations to relieve the obstruction; one died of a lung abscess four and one-half months after operation. The case of coronary sclerosis with anginal attacks and the case of abscess of the lung four and one-half months after operation are included, but their relationship to the mortality following subtotal gastrectomy is certainly questionable.

In reporting this series of 221 cases, with a mortality of 5.4 per cent, 56 cases have been included in which operations had been performed previously and subtotal gastrectomy was the second or third operation. Forty-two cases were complicated by severe hemorrhage just before entering the hospital, or just after admission. Fifteen patients had acute penetrating symptoms within a short time before operation.

Clinical End-Results.—In following up these cases, we have found that 95 per cent are free from symptoms, are on no particular diet or medication, and have gained from 15 to 50 pounds. Some of these, a very small percentage, complained for from three to six months of fulness after eating, sweating and weakness,

Fig. 12.—Appearance following completion of operation, showing the inverted stump of the duodenum, and the anastomosis below the transverse mesocolon.

which appeared after each meal and lasted from ten to thirty minutes. This condition disappeared in from three to six months. We believe that this is a vagus disturbance and have noted it mostly in women who tend to be neurotic. In a number of cases in which these symptoms appeared the stomach emptied rather slowly and when the symptoms disappeared the emptying time was from thirty to fifty minutes. In the remaining

5 per cent of cases there are symptoms of distress that cannot be accounted for by the emptying time or roentgenologic observations. Some of these were diagnosed as spastic colitis, others on the basis of a visceral neurosis. They usually occur in highly neurotic persons who do not gain in weight and in whom it is difficult to estimate how many of the symptoms are truly physical.

Emptying time was from one to one and one-half hours immediately after operation, but from three to six months afterward it was somewhere between thirty and fifty minutes. This shows that the stomach and jejunum undergo muscular development as the result of their new mechanical function and physiologic condition.

The acidity following gastrectomy corresponds with that published by Berg and Lewisohn. At the end of two weeks there was in 5 per cent of these cases a free acid of from 10 to 15, with a total acidity of from 25 to 30. In the remaining 95 per cent there was no free acid and the total acidity was from 5 to 10. In subsequent follow-up work on these cases there was no change from the immediate postoperative analyses. We believe that one great factor in this anacidity is the rapid emptying time of the stomach which prevents a reflex irritation and formation of hydrochloric acid.

Fig. 13.—In cases of high gastric resection in which the mesocolon cannot be brought up to the stomach, the jejunum is brought through the slit and the mesocolon is left without being sutured.

There has been practically no change in the postoperative observations of the blood over the preoperative ones. Both hemoglobin and red blood cell count have remained the same or slightly higher. There were only two exceptions, one in a patient with a chronic bleeding ulcer who remained anemic, and the second in a patient with a severe diarrhea before operation which persisted after operation. Since then the diarrhea has stopped and the blood picture has become normal.

CONCLUSIONS

1. We believe that ordinary wage earners of the laboring class with marked recurring symptoms of duodenal ulcer should be operated on after one thorough medical treatment.

14. Our clinical end-results, as well as our 5.4 per cent mortality, in these 221 gastrectomies, which included complicated cases and those in which previous gastric operations were done, justify our continuance of this operation for duodenal ulcer in preference to any other surgical procedure.

THE INCIDENCE OF HEMORRHAGE IN PERFORATED GASTRIC AND DUODENAL ULCERS *

MOSES BEHREND, M.D.
PHILADELPHIA

PROTOCOL.—*Perforated ulcers rarely bleed.*
Bleeding ulcers rarely perforate.

Ulcers of the stomach and duodenum manifest themselves in various ways. They are selective in their location, their time of perforation and their incidence of hemorrhage. The varying degrees of morbidity caused by them depend to a large degree on their location. In searching for ulcers, physicians know from previous experience that the most likely site for their formation is the stomach and duodenum. Particularly are they prevalent along the lesser curvature of the stomach, the pylorus and the first portion of the duodenum. Ulcers that perforate are usually found in these places, but those that produce hemorrhage have not always the definite locations referred to. The reasons for these variations in the genesis of ulcers have never been definitely determined. Again, the fact that some ulcers may exist for years and never perforate or produce hemorrhage, but simply result in chronic invalidism, has never been satisfactorily explained.

For some time anatomists and surgeons have ascertained that certain areas around the pylorus possess a deficient circulation. These areas are immediately proximal and distal to the pylorus on the cephalad side. Naturally, the circulation varies somewhat in every patient, but generally there is an anemic area which is very noticeable when compared to the remainder of the stomach. In these bloodless areas perforations are quite apt to occur, which may account for the observation already made that perforated ulcers rarely bleed. I have never experienced such a case. I have also never had a perforation occur on the caudal surface of the pylorus, where the stomach is more richly supplied with blood (fig. 1). The cardiac end of the stomach and the posterior wall have also been more or less free from perforative ulcers. If perforation occurs in ulcers on the posterior wall of the stomach, they become adherent to the parietal peritoneum and the pancreas; the same may be said of perforating ulcers on the posterior wall of the duodenum.

Lately, independent of the work of Einhorn [1] and of Cole,[2] I conducted some research work concerning the blood supply of the stomach, especially at the pylorus. Immediately after a postmortem, the vessels supplying

* Read before the Section on Surgery, General and Abdominal, at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Einhorn, Moses: Surg. Gynec. Obst. **50**: 416 (Feb.) 1930.
2. Cole, L. G.: New England J. Med. **201**: 1081 (Nov. 28) 1929.

the stomach are clamped so that they can be injected more readily with a gelatin mass stained with carmine. I have practically come to the same conclusion as Einhorn, who has worked along similar lines; namely, that:

The arteries in the submucosa, in the pyloric region of the lower lesser curvature of the stomach, are practically terminal vessels and are relatively sparsely distributed, giving a limited blood supply to this area. They are tortuous, anastomose infrequently, and are subject to powerful and repeated forcible contractions by numerous interlacing, intricate and frequently contracting muscle bundles. These constrictions tend to interfere with the circulation and, moreover, the terminal vessels are subject to the same tendency to circulatory interference by reason of easy blocking as are the terminal vessels in the brain or the kidney, and are especially liable to harbor the foci of anemia.

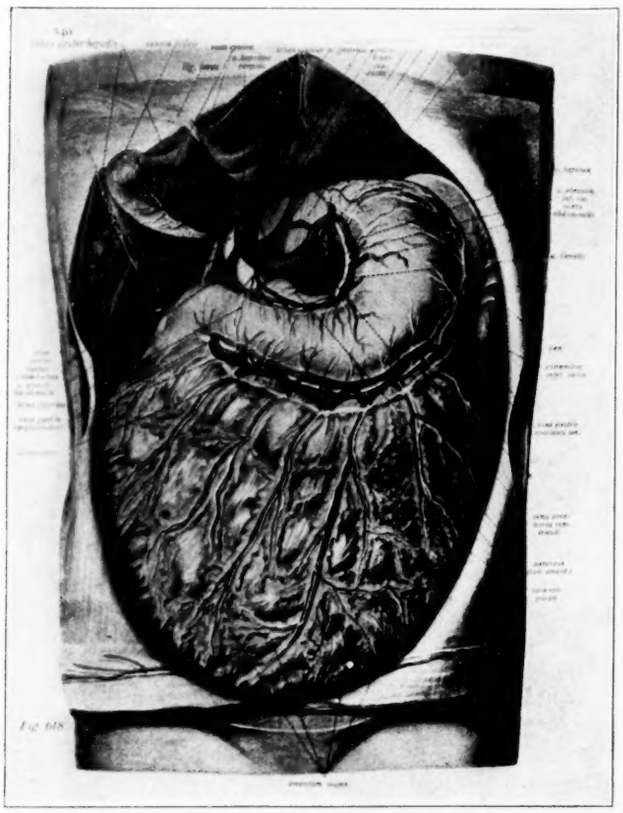

Fig. 1.—Note the anemic area around the pylorus. The arteries in this region are end vessels with practically no anastomosis.

As soon as perforation occurs, secretions of the stomach or duodenum, as well as the food content, exude. These acrid discharges, no doubt, have a tendency to seal any small blood vessels in the wall of the ulcer. Another factor militating against hemorrhage is the adhesion of the walls of the perforation to the surrounding tissues. Again, a protective lymph which surrounds the perforation helps to protect not only bleeding but also the escape of the contents of the viscera.

Bleeding ulcers rarely perforate. Ulcers that give rise to hemorrhage are more apt to occur in the pliable elastic tissue of the stomach and duodenum than in the denser area around the pylorus. Ulcers that bleed are not always readily located. No definite place can be assigned to this type of ulcer. One naturally always looks first in the ulcer-bearing areas. At times, however, it becomes necessary to explore the mucous membrane of the stomach thoroughly before finding the point of bleeding. Again, it is frequently impossible to find the source of hemorrhage, because the entire mucous membrane of the stomach seems to be in a state of congestion, blood oozing from every surface where it is touched. However, if the source of hemorrhage cannot be found at all, one must visualize the possibility of dilated esophageal veins as its cause. In the presence of cirrhosis of the liver, for instance, one can readily make a diagnosis of dilated esophageal veins. The appendix has also been held responsible for hematemesis; Deaver has mentioned cases cured after an appendectomy.

There is some difference of opinion concerning the question whether surgeons should or should not operate while the patient is bleeding. They know which course to pursue if bleeding is present from any other source. The same holds true in patients bleeding from gastric or duodenal ulcers. The patient ought to be operated on and the source of hemorrhage located. If an ulcer is found, excision should be practiced. True, ulcers that bleed are more difficult to find than those which perforate, for the reasons stated before: first, because they do not always occur in the classic situation of ulcers and, second, the latter are usually found in the more elastic areas of the stomach and duodenum. An illustration is afforded by a patient, a woman, whom I saw in consultation in a neighboring city. She had hematemesis and bloody stools, with outward signs of severe loss of blood. I advised a blood transfusion if the bleeding continued and then operation for the source of bleeding. This advice was not followed; the patient bled to death. Tragic deaths occur in those who have secret bleeding from gastric or duodenal ulcers without any external signs of its taking place.

Fig. 2 (Davidsohn).—Only a few islands of gastric mucosa are seen. The remaining part shows a deep ulcer reaching down into the muscularis. The surface of the ulcer is covered with a fibrinous exudate. The muscularis is densely infiltrated with many leukocytes. The blood vessels are compressed. These ulcers rarely bleed.

This occurred in two young men during the night; they were to have been operated on the next morning. The nurse on her rounds during the night found them dead.

It is my opinion that to defer operation for bleeding ulcer in the hope that the ulcer may not bleed again is an error of judgment.

REPORT OF CASES

A man, aged 30, admitted to Mount Sinai Hospital, Nov. 26, 1928, in the private medical service of Dr. A. I. Rubenstone, had been well until a year and a half before. Two days before admission he had passed blood by the bowel and on the day of admission he passed blood. He was anemic and undernourished and he complained of palpitation. The abdomen was tender in the epigastric region. Under treatment for ulcer, and by means of transfusion, the bleeding stopped to a marked degree. Small amounts of blood were always passed by the bowel. The patient was operated on two weeks after admission. No distinct ulcer could be felt, but on the serous surface there was evident stippling of the serous coat. This portion was excised and a tiny ulcer was disclosed. A pyloroplasty completed the operation. A pathologic report confirmed the ulcer macroscopically and microscopically (fig. 3). The patient has had no recurrence since operation.

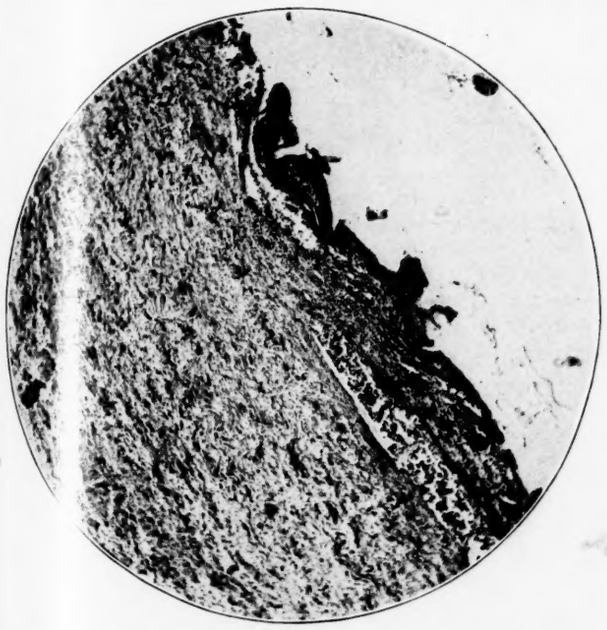

Fig. 3 (Davidsohn).—Here is found a pronounced inflammatory reaction at the bottom of the ulcer consisting of a round cell infiltration with occasional eosinophil and neutrophil leukocytes and a young granulation tissue with fibroblasts and large capillaries. These are the bleeding ulcers.

Recurrent hemorrhagic ulcers after their excision are rare. A case of this character, however, first came under my notice three years ago:

A man, aged 21, was admitted to the Jewish Hospital in the private service of Dr. E. A. Heller, May 1, 1927. The symptoms began four years previously. In February, 1923, there was severe vomiting of food, followed by hematemesis. Blood was noticed in the stools. He did not complain of pain. He vomited at least twice a day. In November, 1923, he had a similar attack, losing so much blood as to incapacitate him for two months. The following April he had a third attack, which was not as severe as the previous one. He had four bloody stools. In April, 1926, he had a fourth attack of hematemesis. Since then, infrequent attacks of a dragging sensation over the upper part of the abdomen caused occasional attacks of nausea. He gained no weight in three years. He had the typical appearance and physiognomy of the ulcer patient. Fluoroscopic examination showed that the stomach filled normally. It was the shape of a fish-hook. There were no filling defects in the stomach. The duodenal cap showed a filling defect along its upper border, evidently the site of an ulcer. Operation was performed, May 7, 1927. A well defined ulcer was found; a stellate scar on the serous coat near the pylorus was outlined. The ulcer was removed and a posterior gastro-enterostomy performed. The pathologic report was benign ulcer.

The patient was readmitted, July 4, 1928, with a complaint of hemorrhage from the bowel. For the past two weeks the patient had seen bloody stools. July 5, he had a profuse hemorrhage which made him extremely weak and dyspneic. A blood transfusion was performed, and the next morning the old site of the ulcer was found. Attached to the mucous membrane was a piece of linen thread from the previous operation, which seemed to be the cause of the hemorrhage. This was excised with the ulceration it had caused.

The patient was readmitted, Feb. 26, 1930, with a profuse bleeding from the bowel. Transfusion was performed on admission. He was operated on, the next morning, and just beyond the old scar of operation there was a series of soft pliable ulcers. A large portion of the anterior wall of the duodenum was excised. The mucous membrane was pitted and furred. Beyond this area the mucous membrane was normal. This was rather a remarkable case, because within three years the patient had had three distinct ulcers, the last seemingly a group of ulcers lining the mucous membrane of the duodenum.

COMMENT

Perforative ulcers occur more frequently than bleeding ulcers. This fact is also difficult of explanation. In one year I operated on twenty-four perforated ulcers; during this time not one case of bleeding ulcer was observed. The exact ratio is not known, but I should judge that about one in twenty-five bleeds.

It is interesting to note the gross pathologic difference in vivo between the chronic ulcer, the perforating ulcer and the bleeding ulcer. No one can mistake the hard, indurated, punched-out ulcer for any other type. Here the edges of the ulcer are firm; the base of the ulcer is devoid of mucous membrane, being displaced by firm connective tissue. The base of the ulcer is of varying depth, depending on its chronicity. These ulcers do not bleed because the blood vessels have been partially obliterated by the hard connective tissue. They may perforate, depending again on the thickness of the base of the ulcer. The bleeding ulcer is usually an acute condition; hence the area affected is much smaller in extent. The edges of these ulcers are soft, with rounded borders; the surrounding mucous membrane is

Fig. 4 (Davidsohn).—The section shows a mild inflammatory reaction consisting of a moderate infiltration with round cells and leukocytes. The edges are covered with a thin layer of fibrinous exudate. Another type of bleeding ulcer.

congested and it often becomes difficult to locate the source of bleeding unless one opens the suspected viscus. Even then, one may not find the source of the bleeding. The perforated ulcer usually follows the description of the chronic ulcer with the added picture of perforation. There is found a solution of continuity in the center of an indurated wall of the stomach or duodenum. The same is true of perforations without previous gastric symptoms. Another type of perforation is found when the wall surrounding the ulcer is perfectly flaccid with little or no inflammatory reaction. This is a rare condition of which I have seen one case.

The histologic picture of the ulcers described can be verified when placed under the microscope. For instance, in the chronic type (fig. 2), the base of the ulcer shows a few small blood vessels. They have been pressed on by the proliferation of fibrous tissue. As a consequence, these ulcers do not bleed as readily as the acute or subacute type. In these there is very little inflammatory reaction, with almost an entire absence of connective tissue elements. The blood vessels, therefore, have not been compressed because of the absence of scar tissue, such as is found in the chronic ulcer. Also in the acute and subacute forms the capillaries are large, which naturally predisposes to hemorrhage (figs. 3 and 4).

CONCLUSIONS

The fact that bleeding ulcers rarely perforate and perforated ulcers rarely bleed may be explained by anatomic physiologic and pathologic observations.

Anatomically, there is a bloodless area around the pylorus responsible for some of our deductions; physiologically, the exuding juices prevent hemorrhage, while pathologically the age of the ulcer determines whether it is going to bleed or not.

1738 Pine Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STRAUSS, BLOCH, FRIEDMAN, MEYER AND PARKER AND DR. BEHREND

DR. ROY D. MCCLURE, Detroit: The title of the paper by Dr. Strauss and his collaborators first suggested to me Dr. Lane's colectomy in the prevention of old age; that is, it seemed like a tremendously radical procedure. I would like to know, perhaps after fifteen or twenty years, the end-results of these cases. Better conclusions can be drawn from the series presented by Dr. Strauss if they can be followed and reported again in ten years. Our experience in duodenal ulcer is that, largely, it is a medical disease with only an indirect surgical approach, such as the removing of tonsils, infected teeth, abscesses, perhaps appendixes and even gallbladders in which infection is present. Perhaps the authors mentioned the percentage of duodenal ulcer patients which they have in the hospital that are operated on. If not it would interest the section to know. When we do operate on a patient with a duodenal ulcer, we do either a pyloroplasty with destruction of the muscles of the pylorus, or a posterior gastro-enterostomy. In only a limited number of cases are we doing a more radical procedure, and our results have been extremely good. We have a number of cases in which the pylorus is involved by the ulcer. In the experience which I relate, I give our reason for a two-stage operation instead of a single-stage operation if a resection has to be done. I recall two cases in which there was involvement of the duodenum and the pylorus, with an extremely wide inflammatory reaction around the ulcer, and it was difficult at the operation to tell whether cancer had already developed in this area. Two-stage operations were decided on and high posterior gastro-enterostomies performed. Two weeks later we went in to resect the pylorus and first part of the duodenum, and much to our amazement the tumor mass had entirely disappeared. Both of these patients have been followed, and they have had no further trouble. For that reason, I should feel that all these cases of operative ulcer could perhaps first have the advantage of a high posterior gastro-enterostomy, and then, if in a month or two months or six months the patient is not well, a subtotal resection of the stomach is much easier to perform, and I believe the risk and the end-results would be even better than those of Dr. Strauss and his associates which are good, as shown by their statistics. I feel that the doctrine of such radical surgery practiced by average surgeons is rather a dangerous doctrine. If a subtotal gastrectomy is indicated, perhaps it should be done by surgical teams here and there who gain skill through the large number of these operations they have done.

DR. RICHARD LEWISOHN, New York: Partial gastrectomy for duodenal ulcer yields much better end-results than more conservative procedures, gastro-enterostomy, local excision and pyloroplasty. The main object of any surgical procedure should be a permanent cure at the time of the primary operation. It is well known that the so-called conservative methods fail to cure the patients in a large percentage of instances. In my material, a careful follow-up of gastro-enterostomies showed that less than 50 per cent of the patients were completely cured, and that 34 per cent suffered from gastrojejunal ulcer. In 16 per cent, this diagnosis was proved by reoperation. The other 18 per cent (proved by x-rays) refused reoperation or went to other hospitals. It is interesting to find that my observation in 1925, of the high incidence of gastrojejunal ulcers has been confirmed, not only by Dr. Strauss and his associates but also by similar statistics published by a number of other clinics. Two main arguments have been advanced against subtotal gastrectomy in gastroduodenal ulcers: (1) that the mortality is apt to be excessive, and (2) that this method represents an unnecessarily mutilating procedure. The retrocolic Billroth II method (either in the form of the Hofmeister anastomosis or in very high gastric resections with the aid of a button) has given satisfactory results in my hands. The mortality in primary operations for chronic gastroduodenal ulcers over a period of eight years was 2.27 per cent, certainly not a prohibitive mortality. Acute bleeding ulcers, operated on either during or immediately after a profuse hemorrhage, are not included in this series. As to the second point, I consider gastro-enterostomy which fails to cure one out of two patients and which is followed by gastrojejunal ulcers in about one out of three patients, a much more mutilating procedure than subtotal gastrectomy. I have seen patients who had to undergo six and more surgical operations until gastric resection cured them. What an economic waste. The majority of American surgeons favor gastro-enterostomy, whereas the surgeons in Germany and Austria favor gastric resections. I understand that Starlinger has recently collected about 25,000 case reports of partial gastrectomy for ulcer from eighty-five clinics in Germany and Austria, a most impressive figure. The number of recurrences in this series were less than 1 per cent.

DR. LEON BLOCH, Chicago: In an experience with more than a thousand cases of duodenal ulcers I have become somewhat skeptical about the results of medical treatment. The 80 per cent of medical cures in former reports have dwindled to less than 50 in more recent ones. The frequent finding at autopsies of ulcer scars in the duodenum often without symptoms during the life of the individual prove that ulcers heal and heal spontaneously. However, remissions of five or more years do not mean that cure has been effected because the occurrence of hemorrhage and perforation in apparently cured cases are tragic evidences of failure. New ulcers may continue to form in one with ulcer tendency. This apparent failure of medical measures, however, does not mean that operation is recommended for every case. Perforation, repeated or severe hemorrhage and organic stricture are the definite indications for surgery. What, then, should be done? I tell my patients that there is no time limit to the treatment and that they may have to restrict their diet for one or more years or even indefinitely if they wish to avoid an operation. Hemorrhage with or without pain is a very frequent symptom of gastrojejunal ulcer following gastro-enterostomy for duodenal ulcer. Hurst in his recent book on ulcer states that many patients who did not bleed before the operation bleed after gastro-enterostomy. This is in accord with our views. Pain is the most common symptom; it is often

more intense and is less amenable to treatment than the original ulcer. Gastrojejunal ulcer is rare after resection and the dangers of the operation are much less than for the secondary operation for jejunal ulcer after gastro-enterostomy. In fact, the mortality rate of resection in my private patients operated on by Dr. Strauss is much smaller than reported by him. Undoubtedly the better physical condition of these patients at the time of operation accounts for this. Recovery occurs after a period of readjustment of from three to six months. During this time the jejunum dilates sufficiently to take care of the increased burden thrown on it and the patient learns to chew his food properly, thereby avoiding the troubles of an irritable colon. He then may eat what he wants and when he wants to and have no discomfort. Such results certainly speak for resection as against gastro-enterostomy.

DR. BERNARD PORTIS, Chicago: I wish to report some of our experimental work on the effects of gastrectomy and gastro-enterostomy on gastric secretion and upper intestinal flora. This work was started about nine years ago, in association with Dr. Alfred Strauss at the Nelson Morris Institute of the Michael Reese Hospital. I found that dogs subjected to gastro-enterostomy, compared to dogs having a gastric resection, did not have a materially altered gastric secretion because of the gastro-enterostomy, whereas dogs that had a partial gastrectomy had a resultant anacidity or absence of free acid after this operation. When the emptying time was tested under a fluoroscope, the dogs that had a gastro-enterostomy emptied in about the same time as normally, whereas the dogs that had a gastric resection emptied in from a third to a half of the previous normal. There are two important facts to be considered in the question of the outcome of the two operations for the cure of duodenal ulcer. The acid is practically absent or completely neutralized in the remaining stomach, and the emptying time is quicker after partial gastrectomy, whereas the contrary is the case after gastro-enterostomy. Another important feature that I studied was the effect of these two operations on the upper intestinal flora. I am not going into the details, because it was published a few years ago in one of the journals. However, the conclusions are as follows: The upper intestinal flora, especially in the jejunum, tends to become fecal in type in partial gastrectomy, whereas the upper intestinal flora in gastro-enterostomy remains practically the same. What results will ultimately occur from this change in the upper intestinal flora will demand future observation. However, it is not to be overlooked that perhaps some time, in ten or twenty years, serious results, more especially serious anemias, may occur in patients who have had gastric resection, although the immediate clinical results are much better after this type of surgery. Another feature which we observed in patients who have had a gastro-enterostomy is that the ulcer should not be considered cured just as soon as the anastomosis is made. Patients require ulcer management for a considerable period in order to prevent the recurrence of the ulcer. Also those individuals who have had hemorrhages from duodenal ulcers and have had gastro-enterostomies frequently have subsequent hemorrhages.

DR. WILLIAM J. CASSIDY, Detroit: This ulcer question has been the battle-ground of the surgeon and the medical man for a great many years. Gastro-enterostomy, when it first came out, was done for every condition in the abdomen which had any signs or symptoms or even suggestible symptoms referable to the stomach. Since the advent of the roentgen ray, this has put gastric and duodenal diagnosis on a more accurate basis, so that fully 95 per cent of the gastroduodenal ulcers and gastric ulcers should be diagnosed by a fairly good roentgenologist or by a good roentgenologic surgeon. This axiomatic fact must be borne in mind: Any operation that leaves stomach tissue leaves a potential area for ulcer, irrespective of who does it. Any surgical procedure that carries a high incidence of mortality for the average surgeon is not the best type of operation to advocate at large. We decry medical management. The medical man isn't a bad fellow if he is given half a chance. Let him treat the patient first. The trouble with surgeons is that the patients with acute ulcer too often come first to the surgeon and the patients with chronic ulcer too often come first to the medical man. European surgery cannot be applied to American surgery. The average American will not listen to rule or reason. If a law is made, the patient will try to break it. That is what is wrong with the treatment of ulcer in the United States today. These patients will not stand regulation. In about 200 perforating ulcers that I have seen, about 35 per cent bled previous to perforation. They did not bleed at the time of perforation. Any ulcer, especially if it is localized at the lesser curvature of the stomach, along the larger blood vessel, if it erodes into a vessel, is going to bleed. The acute perforating ulcers rarely bleed, they go through so quickly. I have seen them go through in twenty-four hours. They are punched out, there is no inflammatory process; it is too rapid; and they are usually streptococcic.

DR. CLARK D. BROOKS, Detroit: I think that there is less and less need of operating on ulcers on account of better medical management. A great many patients, I believe, are operated on with different types of operation for duodenal ulcer that do not need operation at all and would get well if they had good medical management by a competent medical associate. I think gastro-enterostomy is often condemned because, first of all, it is done when it is not necessary. I believe that a properly made gastro-enterostomy by a properly qualified surgical team will show good results in more than 90 per cent of patients. My own belief is that the ideal treatment for chronic duodenal ulcer which has not responded to good medical treatment in most cases is to destroy the ulcer with the actual cautery at the time of the operation and to perform a large no-clamp method of gastro-enterostomy. Regarding the bleeding ulcer, I do not believe that the patient who comes into the hospital in an ambulance, with hemorrhages, should have an operation until he has had a blood transfusion, intravenous dextrose and a fair trial of starvation and good medical management. If operation is performed in these cases of the acute bleeding type, many of the patients will die on the operating table in spite of emergency blood transfusions, because there may be an esophageal varix as the cause of the bleeding and the operator cannot tell whether it is an ulcer case or not unless there was a previous roentgen examination made. The desired end-result of any procedure is to relieve the patient of his symptoms as safely as possible and to allow him to be self-supporting. Every case of duodenal ulcer should continue to be under good medical supervision, whether the patient has had any surgical treatment or the type of surgery advised.

DR. FRANK H. LAHEY, Boston: I feel sure that the outcome of these discussions leaves one with the feeling that the procedure is largely affected by whether one is a physician, a surgeon or, most important of all, a patient.

DR. A. A. STRAUSS, Chicago: I doubt whether much will happen to a successful subtotal resection at the end of ten years—I mean one that has been successful for ten years—and I am afraid some of us in twenty-five years won't be here to know what happens. But it cannot be denied that our results correspond with the results of the various clinics in other countries, and I believe a human being in Austria is the same as one in New York. As to the anemias, we have had only two cases of anemia. One was in a case presenting diarrhea before operation and diarrhea after operation. This diarrhea has ceased and the anemia has disappeared. One patient still has anemia. That was in the case of a bleeding ulcer, and the patient has never recovered from anemia. These are the only patients that I know of in our series of 221 resected cases that had anemia. As to the point that Dr. Brooks made, we believe that 95 per cent of all ulcers stop bleeding and the blood transfusion helps to stop the hemorrhage, and then we operate only if there is a history of a fatal or near-fatal previous hemorrhage. We believe that a patient who comes into the hospital with a second hemorrhage should be operated on within two or three weeks after the hemorrhage has ceased, with several blood transfusions, and then a subtotal resection done. About 20 per cent of the patients who come to us—in a group we get a large number of patients who have been in various clinics—are operated on. We believe that the patients on whom we operate, usually for clover-leaf deformities of the duodenum, are suffering from an anatomic deformity, in other words a partial anatomic obstruction, which no medical treatment can cure; and those are the majority of the cases

in which we do a subtotal resection. We know that 65 per cent or more of the patients that are operated on have a duodenal ulcer penetrating the posterior wall, and those are the cases that we believe are distinctly surgical and not medical.

DR. MOSES BEHREND, Philadelphia: I am glad Dr. Strauss and his co-workers mentioned the fact concerning the clamps. I still use the clamps, but the more I use them the less I like to use them. I believe that a great deal of harm is done by the use of clamps, especially the Payr clamp. Entirely too much pressure is exerted on the delicate structures of the stomach and duodenum. Concerning acute hemorrhage, I thought some exception would be taken to that statement; but the more I see of these cases of bleeding, the more I believe that they should be treated the same as any other case in which there is bleeding. With the proper preoperative treatment, such as blood transfusions, dextrose and all the things that have been mentioned here, there is no reason why operation cannot be performed ten or twelve hours after the hemorrhage. I have seen no harm result from this, but I have seen a lot of good, and I have lost no patients as a result of operative intervention in those cases. It is true, as Dr. Lewisohn has stated, that these ulcers usually occur on the caudal side of the pylorus, on the posterior wall of the duodenum or on the posterior wall of the stomach, and one should never hesitate, if there is no exterior sign of ulcer, such as stippling of the serous coat, to do a gastrotomy or a duodenotomy and find out where the bleeding point is. That is the proper procedure. I have never experienced a hemorrhage occurring two or three months before perforation. I have never had a case of that character. In all my cases there was either bleeding or perforation. As for subtotal resection versus gastro-enterostomy, I still feel that one ought to choose the operation for the individual case and that it doesn't seem right to make a dogmatic statement concerning this fact, that gastrectomy should be done in almost every case in which a duodenal ulcer is found. I believe that it depends solely on the judgment of the surgeon, the condition of the patient and the patient himself.

SUBCUTANEOUS NODULES IN RHEUMATOID (CHRONIC INFECTIOUS) ARTHRITIS *

M. H. DAWSON, M.D.
AND
R. H. BOOTS, M.D.
NEW YORK

The occurrence of subcutaneous nodules in patients suffering from rheumatic fever has long been recognized and has been the subject of intensive investigation by many workers. Carey Coombs [1] has recently stated that of all manifestations of orthodox rheumatic infection—carditis, polyarthritis, subcutaneous nodules and chorea—the subcutaneous nodule is the most "rheumatic" of all. Swift [2] and other investigators have from time to time expressed similar views. Considerably less attention, however, has been paid to the subcutaneous nodules that occur in patients afflicted with rheumatoid arthritis [3] notwithstanding the fact that in this disease such a manifestation is an even more striking phenomenon.

One of the oldest and, at the same time, one of the most complete descriptions of these nodules is that given by C. O. Hawthorne [4] in a monograph in which he describes the occurrence of subcutaneous nodules in a series of six patients and expresses the opinion that rheumatic fever and rheumatoid arthritis are different manifestations of the same fundamental process. Histologic descriptions, however, are entirely lacking and there remains an element of doubt as to whether some of his cases may not have been cases of gout. Garrod,[5] in his classic description of rheumatoid arthritis in 1910, refers to the occurrence of subcutaneous nodules in this disease. On clinical grounds Garrod differentiates these nodules from those found in rheumatic fever, but no histologic studies are presented. Wick [6] of Vienna in 1910 described similar nodules and called attention to the relationship between them and those found in rheumatic fever. In 1926, Coates and Coombs [7] described the histologic structure of subcutaneous nodules in three cases—one of rheumatic fever, one of rheumatoid arthritis and one of Still's disease. They conclude that the nodules in the three diseases are very closely related if not identical structures. In 1928 Freund [8] published a full description of the nodules and thoroughly discussed the relationship between rheumatic fever and rheumatoid arthritis.

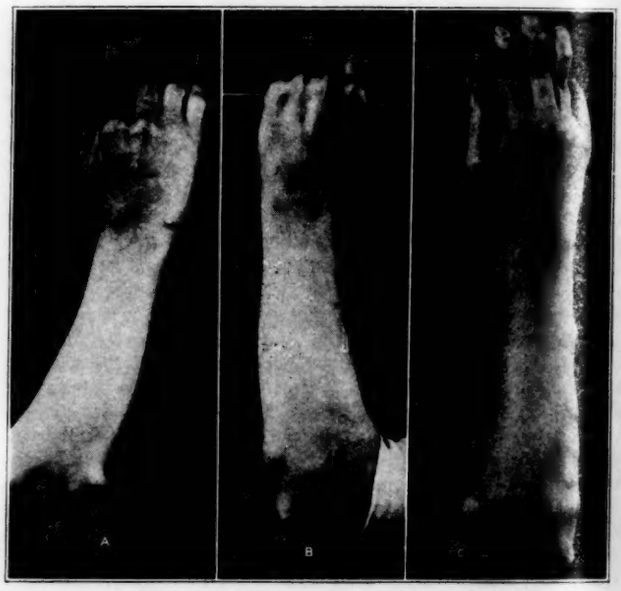

Fig. 1.—Subcutaneous nodules in rheumatoid arthritis: *A*, *B*, symmetrical distribution from 4 to 5 cm. distal to olecranon. *C*, large nodules on dorsal surface of forearm; note typical "rheumatoid" deformity of hand.

Since the establishment of the arthritic clinic in this hospital a year ago, subcutaneous nodules have been observed in forty patients. Approximately 200 patients with true rheumatoid arthritis have been seen in the clinic during this period, so that the incidence of patients with nodules is relatively high—approximately 20 per cent. However, since attention has been focused

* From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Arthritic Clinic of the Presbyterian Hospital. (The Arthritic Clinic of the Presbyterian Hospital is supported by the Faulkner Memorial Fund.)

1. Coombs, Carey: Rheumatic Heart Disease, New York, William Wood & Co., 1924, p. 6.

2. Swift, Homer: Rheumatic Fever: Hektoen Lecture, Billings Foundation, J. A. M. A. **92**: 2071 (June 22) 1929.

3. The Arthritic Clinic of the Presbyterian Hospital has adopted the terminology and classification of rheumatic diseases advocated by the British Ministry of Health. Chronic joint changes are divided into the following categories: (1) rheumatoid arthritis (American "chronic infectious" and "atrophic"); (2) osteo-arthritis (American "hypertrophic" and "degenerative"); (3) gout; (4) unclassified. This classification has been recommended by the International League for the Control of Rheumatism and therefore possesses the advantage of widespread use.

4. Hawthorne, C. O.: Rheumatism, Rheumatoid Arthritis and Subcutaneous Nodules, London, J. and A. Churchill, 1900.

5. Garrod, A. E., in Allbutt, T. C., and Rolleston, H. D.: A System of Medicine, New York, Macmillan Company **3**: 3, 1910.

6. Wick, L.: Wien. med. Wchnschr. **31**: 1804, 1910.

7. Coates, Vincent; and Coombs, C. F.: Arch. Dis. Childhood **1**: 183 (Aug.) 1926.

8. Freund, E.: Wien. Arch. f. inn. Med. **16**: 73 (Oct.) 1928.

on this particular phenomenon, the incidence among patients at large is possibly somewhat less.

The nodules have been observed only in cases of typical rheumatoid arthritis and in one case of Still's disease. They have never been recognized in cases of osteo- (hypertrophic, degenerative) arthritis. Three of the patients in whom the nodules occurred presented a history of a previous attack of rheumatic fever. Four patients showed definite evidence of rheumatic heart involvement. In one patient the development of arthritis and the appearance of nodules appeared to bear a definite relationship to a previous attack of scarlet fever.

DETAILED OBSERVATIONS OF NODULES

Size.—The nodules vary in size from small, scarcely palpable, seedlike bodies to large excrescences the size of olives.

Situation.—The site at which they are most commonly observed is on the dorsal surface of the forearm at a point about 4 cm. distal to the olecranon. They are also seen over the olecranon itself, in the wall of the olecranon bursa, over the dorsum of the forearm and hands, over the knees, the sacrum and the scalp.

Consistency and Attachment.—The nodules are usually moderately firm in consistency and discrete in their outline. They always occur in the subcutaneous tissue; they are not attached to either the skin or the underlying periosteum but frequently show a relationship to tendon sheaths and the walls of bursae.

Evolution and Duration.—As a rule these nodules develop slowly and persist over long periods of time—frequently for many years. The smaller ones, however, run a more acute course and may appear and disappear within a few months, occasionally within a few weeks.

Type of Case and Prognosis.—These structures are, for the most part, observed in severe cases and generally indicate an unfavorable prognosis.

Pain.—The nodules are never painful and only in rare instances do they cause the patient any inconvenience.

Histologic and Bacteriologic Examination.—Nodules have been excised from fourteen patients and subjected to careful histologic and bacteriologic examination. All the material examined shows a striking, uniform and characteristic picture. Histologically the essential features may be briefly outlined as follows:[9]

1. An area of central necrosis, apparently due in its earliest stages to a gelatinous swelling and disintegration of collagen bundles. Depending on the age of the nodule and the severity of the process there is a variable amount of fibrin deposition and inflammatory cell infiltration. As a rule the necrosis is much more extensive and the process much less acute than that seen in rheumatic fever nodules, but all intermediate stages may be seen.

2. A surrounding zone of peculiar and characteristically arranged large mononuclear cells. These cells are, for the most part, disposed in radial fashion and are largely responsible for the characteristic appearance of the whole lesion.

3. An enclosing zone of dense and relatively avascular fibrous tissue. The blood vessels in the area of the nodules themselves only rarely show significant changes, but the arterioles and capillaries in the surrounding tissue are the site of characteristic lesions. These may be summarized as follows:

(*a*) Subendothelial deposition of fibrin, hyperplasia of subendothelial cells, narrowing and even occlusion of the lumen, and, in some instances, canalization of the hyperplastic intima.

(*b*) Splitting of the elastica, and occasionally the formation of a new internal elastic coat; polypoid projections into the lumen.

(*c*) Perivascular cell infiltration by large mononuclear and small round cells.

The bacteriologic investigations have been entirely negative.

With the exception of those peculiar to rheumatic fever, similar nodules have not been observed in any other disease. There is no relationship between this manifestation of rheumatoid disease and the cutaneous and subcutaneous lesions encountered in syphilis, gout or tuberculosis.

Fig. 2.—Appearance of a subcutaneous nodule in rheumatoid arthritis. (Hemotoxylin and eosin stain, low power.) Areas of central necrosis surrounded by zones of radially disposed histiocytic cells.

Fig. 3.—Vascular lesions of a subcutaneous nodule in rheumatoid arthritis. (Elastica stain, high power.) Subendothelial hyperplasia, splitting of elastica and formation of a new internal elastic membrane.

Fig. 4.—Vascular lesions of a subcutaneous nodule in rheumatoid arthritis. (Elastica stain, high power.) Arteritis verrucosa; polypoid projection from arterial wall into lumen of vessel.

9. We are indebted to Dr. A. M. Pappenheimer of the Department of Pathology, Columbia University College of Physicians and Surgeons, for his assistance in the study of the nodules. More complete descriptions will shortly be published with his collaboration.

This study therefore sustains the following conclusions:

1. The subcutaneous nodule occuring in rheumatoid arthritis is a classic lesion of this disease.

2. The histologic appearance of these nodules is uniform and highly characteristic.

3. There is a striking histologic resemblance between the subcutaneous nodules occurring in rheumatic fever and those observed in rheumatoid arthritis.

COMMENT

The relationship between rheumatic fever and rheumatoid arthritis has long been a matter of speculation among clinical observers. Since the time of Heberden (1782) and Haygarth (1805), who were first responsible for the distinction between "acute" and "chronic" rheumatism, the opinion of clinicians has been divided into two schools: those who maintain that the two conditions are entirely separate diseases, and those who consider that they are different manifestations of the same fundamental pathologic process. Among the proponents of the former concept may be mentioned Adams (1857); A. B. Garrod (1859), who first employed the term "rheumatoid arthritis"; Bristow (1884); Fagge (1886); Osler (1892), and Sir A. E. Garrod (1908). Supporters of the contrary theory were Jonathan Hutchison (1881), Charcot (1881), Sir Dyce Duckworth (1884) and Hawthorne (1900). More recently the conception that the two conditions are different manifestations of the same process has received support from Kahlmeter [10] in Sweden and Coates [11] in England.

It is not our purpose in this communication to support either of the two theories or to survey the clinical evidence for or against either hypothesis. The striking histologic resemblance of the subcutaneous nodules in the two conditions suggests the possibility that these two clinical entities may be different manifestations of the same fundamental disease process. However, it will not be possible to express a final opinion as to the relationship of rheumatic fever and rheumatoid arthritis until the etiology of both conditions is definitely established.

620 West One Hundred and Sixty-Eighth Street.

10. Kahlmeter, G.: Acta Rheumatol. **1**: 31, 1930.
11. Coates, Vincent: Proc. Roy. Soc. Med. **23**: 587 (Feb.) 1930.

Unusual Mental Honesty. — The scientific mind in its purest form . . . is one that functions invariably in the light of truth, and one that is entirely unbiased by ulterior motives. It is not something that is possessed by men of science alone, nor are they always in possession of it; it is quite as much a characteristic of artists, or of men in other professions. It reveals itself, to a considerable degree, in that unusual mental honesty which the scientist displays in doing his work. . . . A mental bias may enter into his zeal for facts as much as it may disrupt the clear reasoning of a layman; and yet both may have the "scientific mind" when they surmount the inferences and generalizations that are common to the ordinary mind. Since the works of art and the theories of science are the achievements of their creators, they necessarily show both the strength and the limitations of the minds that conceive them. . . . If science and art can bring man to a fuller comprehension of his relation to the universe and his place in nature, his religion, philosophy and esthetics will be profoundly affected; but science has not yet advanced far enough to dictate the terms of understanding or appreciation of these branches of thought, even though we are constantly being called upon from every quarter of the scientific world to listen to the new discoveries. —Saidla, L. E., and Gibbs, W. W.: Science and the Scientific Mind, New York, McGraw-Hill Book Company, Inc., 1930.

GROWTH OF BONE AND DEVELOPMENT OF RICKETS

RELATIVE SIGNIFICANCE OF CERTAIN ASSOCIATED FACTORS *

EDWARD CLAY MITCHELL, M.D.
AND
MARTHA V. NELSON, M.S.
MEMPHIS, TENN.

This work was undertaken not as a study of rickets but rather as a series of observations of the bone growth of normal, well infants, between 1 month and 1 year of age. The material for the study included fifty infants from private practice, ten infants from an institution and ten from a social center.

Standardized physical examinations and roentgenograms of the wrists were made at monthly intervals. Whenever possible, blood calcium and phosphorus determinations were made at the same time. A modification of Clark and Collip's [1] method was used for the blood calcium, and the Fiske-Subbarow [2] method for the phosphorus. The physical examinations were checked by three people with the same criteria in mind. The roentgenograms were taken by one technician using a three-eighths second exposure, at a distance of 35 inches, 50 peak kilovolts, 50 milliamperes, and 3-inch spark gap. The roentgenographic observations were interpreted by Dr. Sherwood Moore of the Barnes Hospital, Washington University School of Medicine, St. Louis.

The relative value of the different criteria for the diagnosis of rickets is still a subject of discussion. A few years ago Park [3] defined rickets as a disturbance of the metabolism in which the first detectable sign is a diminution of the phosphorus content of the blood. In a more recent paper Hess,[4] working with rats, advanced the idea that there is a local as well as a systemic factor which prevents proper calcification at the epiphyses. He obtained normal blood values without healing of ricketic lesions. The presence or absence of rickets, in the latter study, was determined by roentgenograms. As a result of the tendency toward greater dependence on the roentgenographic observations, it becomes of increasing importance that the normal and the ricketic changes in the growing bone be clearly defined.

In rickets the ulna is described by Hess [5] as presenting a "cupped" or "dished out" appearance with a spreading at the distal end of the bone. The epiphyseal margin of the radius presents an irregular contour, a spongy or rarefied appearance with the later development of an area of increased density.

The roentgenograms of the wrists of the infants of this study were examined with reference to each of these changes and the results tabulated. Of the seventy infants observed, eight, or 11.5 per cent, were classified by the roentgenologist as having normal bone development during the period they were under observation.

* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Clark, E. P., and Collip, J. B.: J. Biol. Chem. **63**: 461 (March) 1925.
2. Fiske, C. H., and Subbarow, Yellapragada: J. Biol. Chem. **65**: 375 (Dec.) 1925.
3. Park, E. A.: The Etiology of Rickets, Physiol. Rev. **3**: 106 (Jan.) 1923.
4. Hess, A. F.; Weinstock, Mildred; Rivkin, Helen; and Gross, Joseph: Lack of Relationship Between the Development and Cure of Rickets and the Inorganic Phosphorus Concentration of the Blood, J. Biol. Chem. **87**: 37 (May) 1930.
5. Hess, A. F.: Rickets, Including Osteomalacia and Tetany, Philadelphia, Lea & Febiger, 1929.

Sixty-two, or 88.5 per cent, had roentgenograms which showed one or more irregularities, such as cupping and pointing of the ulna, an irregularity of the distal margin or an increased density of the lower metaphyses of the radius. The number and intensity of these changes varied widely. Eighty-four per cent of all these changes took place between 2 and 6 months of age.

Such observations at a glance indicate an inadequacy of the rickets-preventing factors and require a careful examination of the food and environment of the infants.

With the exception of the ten infants from the social center, all these children were receiving intelligent care. Milk was the chief item of diet and was fed in quantities equal to or greater than those commonly accepted as requirements at these ages. All of the children received orange juice. Four infants were breast fed until 6 months of age. None of the children received any proprietary foods or high carbohydrate diets. Vegetables, egg yolk and small quantities of cereal were added at age periods varying from 4 to 7 months. The study was made from December to May, inclusive, so the factor of sunshine was negligible. None of the infants received viosterol or ultraviolet ray exposures. The quantity of cod liver oil varied; hence a more detailed investigation of the influence of this article on the bone development was attempted.

TABLE 1.—*Instances of Irregularities of Bone Development of Infants from 3 to 12 Months of Age: Effect of Cod Liver Oil*

Daily	Number Examined	Number Showing Irregularities	Per Cent Showing Irregularities
No cod liver oil	38	29	77
Less than one teaspoonful	42	29	69
One teaspoonful	70	55	79

This study included only seventy individuals, but every child was counted each time he was examined. Thus during the course of observation these 70 individuals became 150 infants, as they appeared 150 times for examination. This was made necessary by the fact that some of the infants belonged in the "no cod liver oil" group for the first one or two examinations and proceeded to the other groups as the cod liver oil was increased. Since irregularities in roentgenograms of bones rarely appeared before 2 months of age, all infants of this age and under have been omitted from this calculation (table 1). Of thirty-eight examinations of infants, 3 to 12 months of age receiving no cod liver oil, twenty-nine, or 77 per cent, showed some irregularity of bone development. Of forty-two receiving less than one teaspoonful daily, twenty-nine, or 69 per cent, showed irregularities, and of seventy receiving one teaspoonful of cod liver oil daily, fifty-five, or 79 per cent, presented one or more irregularities of bone development.

The presence of this amount of cod liver oil in the diet of these infants did not produce symmetrical bone development. The greatest percentage of irregularities occurred in the group receiving the most cod liver oil; i. e., one teaspoonful daily.

These figures may be summarized with reference to growth and some interesting relationships develop. As in the study of the effect of cod liver oil, the babies were counted as many times as they appeared for examination and were divided into three groups. Those whose gain in weight averaged 5 ounces (140 Gm.) a week for that month were designated as "average." Those who gained less were classified as "slow" and those gaining more were designated as "rapid" (table 2).

Of forty-four infants in the slowly growing group, thirteen, or 30 per cent, showed irregularities of bone development. Of sixty-seven in the average growing group, forty, or 60 per cent, and of seventy-seven in the rapidly gaining group, sixty-eight, or 89 per cent, showed some of the changes frequently called ricketic.

TABLE 2.—*Instances of Irregularities of Bone Development of Infants: Effect of Rate of Growth*

Growth	Number Examined	Number Showing Irregularities	Per Cent Showing Irregularities
1 to 12 months of age:			
Slow	44	13	30
Average	67	40	60
Rapid	77	68	89
3 to 12 months of age:			
Slow	27	14	52
Average	58	38	66
Rapid	65	61	94

Omitting the thirty-eight roentgenograms of infants 2 months of age and under, fourteen, or 52 per cent, of twenty-seven infants in the slowly growing group showed irregularities of bone development. Of fifty-eight in the average group, thirty-eight, or 66 per cent, showed irregularities. Sixty-one, or 94 per cent, of the sixty-five infants in the rapidly gaining group showed some irregularities of bone growth.

Fig. 1.—Bones with smooth and regular contours; classified as normal by roentgenologist.

Much has been said of the rickets produced by rapid growth, but should it be necessary to stunt infants in order to prevent the development of rickets? Should not an infant be allowed to gain as he will provided his food intake is properly balanced? It may be that one teaspoonful of cod liver oil is an inadequate amount for a rapidly growing infant, but we believe one should consider not only whether or not infants grow too rapidly or receive too little cod liver oil but also whether these minor bone changes in the early months of life are ricketic in nature.

TABLE 3.—*Appearance of the Physical Signs of Rickets in Seventy Infants from 1 Month to 1 Year of Age*

Characteristic	Instances	Per Cent
Beading	48	70
Flaring of ribs	1	1.4
Slow closing of fontanel	4	5.7
Thickened wrists	..	..
Square head	..	..
Pot bellies	..	..
Bowlegs	..	..

The prevalence of the physical changes ordinarily associated with rickets is shown in table 3.

In many hospitals and private clinics a diagnosis of rickets is recorded on the basis of a perceptible beading of the ribs. We doubt whether many but experts are

capable of distinguishing between moderate ricketic beading and the normal angulation. Of seventy infants under 1 year of age, forty-eight, or 70 per cent, had prominent costochondral junctions. The accuracy of this examination seemed so questionable that we have disregarded it as of any significance at this early age.

Four infants (5.7 per cent) had slow closing of the fontanel, as evidenced by delayed closing of sutures and posterior fontanel and by the size of the anterior fontanel.

One infant developed moderate flaring of the ribs. Other clinical signs, such as thickening of the wrists, square head, pot belly and bowlegs, were absent. Craniotabes was not noted in any case.

In this entire series, only two blood phosphorus values were below the normal range. Both of these were from infants who were not receiving cod liver oil and who were more than 6 months of age. These low values were accompanied by roentgenograms which showed cupping, spreading and irregularity as did many of the other pictures but differed from the other pictures in that the bones appeared spongy and rarefied.

These irregularities are illustrated in the accompanying pictures. The bones shown in figure 1 have a regular contour and an apparently dense consistency and are typical of the bone development rated as normal by the roentgenologist. The bones in figure 2 are dense, but the distal end of the ulna spreads and there are irregular projections from the radius. The calcium is not being laid down in a symmetrical pattern. These two factors and an increase of density of the lower metaphyses of the radius are typical of the irregularities presented by the roentgenograms of the infants of this study.

Such changes as these took place when the infants were in excellent health, receiving an abundance of milk, one teaspoonful of cod liver oil daily, and making a gain of from 5 to 10 ounces (from 140 to 285 Gm.) a week. Without exception the blood phosphorus values of these infants ranged from 5 to 7 mg. per hundred cubic centimeters.

Figure 3 demonstrates spreading of the ulna and irregularity of the radius but presents a fuzziness or rarefaction not noted in the two previous pictures. This infant came under observation at 6 months of age with a blood phosphorus of 2.9 mg. per hundred cubic centimeters. One other infant of this series presented a similar picture. At 10 months of age this infant had a blood phosphorus value of 3 mg. and the roentgenograms of the wrists showed a fuzziness and rarefaction of these bones. Two and four months previously the blood phosphorus values of this infant had been 6 mg. and the roentgenograms of the wrists showed no decrease in the density of the bones.

One teaspoonful of cod liver oil was added to the daily diet of these two infants, and change in the bones was noted at the end of two weeks. This change consisted of an increase in density and is illustrated in figure 4. The improvement in calcification was steady, though the phosphorus content of the blood did not reach 5 mg. until about four weeks after cod liver oil was instituted.

As the roentgenologist has suggested, it may be that the difference between the slight irregularities of the solid bone shown in figure 2 and the fuzziness evident in figure 3 are differences only in degree of change. If this is true, then practically all of the infants were potentially ricketic and present ideas of protection are scarcely adequate.

Fig. 2.—Pointing of ulna and irregular projections from distal end of radius.

Fig. 3.—Bones of infant 6 months of age. Blood phosphorus 2.9 mg. per hundred cubic centimeters. Note irregularities and rarefaction.

Fig. 4.—Same child as in figure 3, three weeks later. Blood phosphorus 4.1 mg. per hundred cubic centimeters.

We do not doubt that these last two infants had rickets, but we wonder whether any of the others had rickets. Is it a fact that bone growth in a well, rapidly growing, active infant must be symmetrical in order to be nonricketic? The suggestion that irregularities unaccompanied by a decreased density may be physiologic and not pathologic is not altogether original. Dr. Martha Eliot [6] made a similar suggestion several years ago as a result of her survey in New Haven. She reported "slight rickets" before 6 months of age in 85 per cent of the infants observed by her. In our series the percentage is slightly lower than this; 75 per cent of our infants gave roentgenographic evidence of slight rickets before they were 6 months of age.

Numerous surveys of the prevalence of rickets have been made all over the world; and surveys in our own country have placed the incidence of this condition at a high figure. We believe that we are fairly well advanced both in the art and the science of infant

6. Eliot, Martha M.: The Control of Rickets, J. A. M. A. 85: 656 (Aug. 29) 1925.

feeding but if from 75 to 85 per cent of the infants show a pathologic development of bone during the first year of life there must be something wrong, either with our methods of feeding or with our technic for diagnosis.

Owing to the number of cases included and the limited period of observation, no definite conclusions can be drawn from this study. However, the data collected up to this point would indicate that the bone growth of well fed, rapidly growing, active infants is not necessarily symmetrical during the first year of life and fails to conform to our standard conception of nonricketic bone development. Whether this is due to the absence of a sufficient quantity of vitamin D or to our present conception of the character of ricketic bone changes is a subject for further investigation.

1073 Madison Avenue.

ABSTRACT OF DISCUSSION

DR. F. C. NEFF, Kansas City, Mo.: I think this study is good for any one who is in the habit of examining roentgenograms of infants. One sees perfectly normal infants sometimes with the fontanel closed at 7 or 8 months. One also sees the fontanel open in perfectly normal infants sometimes 14 to 16 months of age. That is not the rule but it happens sometimes. I have seen a closed fontanel in a Negro baby, aged 12 months, with definite rickets. I have seen the fontanel closed and the child have all the other bone manifestations of rickets.

DR. E. C. MITCHELL, Memphis, Tenn.: Perhaps after two more years of investigation along the same line it may be possible to draw more definite conclusions. It seems to me that statistics on rickets now being given have no definite basis. It is our idea that especially in young children the so-called ricketic changes might be simply physiologic.

ACUTE INTESTINAL OBSTRUCTION *

FRANK SMITHIES, Sc.D., M.D.
CHICAGO

Whatever may be the cause, or (from the duodenum to the rectum) whenever acute, persistent stricture of the lumen of the alimentary tract develops, there is created the gravest form of abdominal emergency.

Initial manifestations, as mild as a common, transient "gas colic," may progress so swiftly that but few hours suffice to accumulate pathologic changes of a degree and extent indicative of early death. Again, abrupt, stormy, painful beginning-symptoms, suggesting rapid and extensive enteric damage, often enough are followed by such quiescence of distress as to present a problem equally puzzling from the points of view of diagnosis and of management. In either type of onset, physical examination of the abdomen may yield few anomalies; the classic or textbook signs of intestinal obstruction are lacking or confused. Indeed, as our material shows, what most commonly are considered as signs of entero or colonic obstruction represent largely the manifestation of chronic, slowly developing types of lesion in which the neuromuscular integrity of the intestine is yet maintained and the mechanical consequences of stenosis are not yet masked or hidden by those evidences of acute, local and systemic intoxication present when obstruction occurs suddenly.

If I may be permitted to introduce certain implied conclusions, before submitting the facts that warrant them, I suggest that the clinical approach to a better understanding of acute intestinal obstruction largely is concerned with the following:

1. Proof that permanent and absolute intestinal obstruction actually exists.
2. Determination at what portion the intestine is involved: (*a*) high or low jejunum; (*b*) high or low ileum; (*c*) the proximal or the distal colon; (*d*) the small and large bowels together: e. g., intussusception or a union between the two.
3. Appraisal of the degree of structural damage present in the parts involved.
4. Determination of the causes operating to produce the obstruction.
5. Apart from consideration of the mechanical faults and their local pathologic sequelae, an appreciation of what systemic ("toxic," chemicophysiologic) or "constitutional" alterations have accumulated and which themselves introduce grave prognostic as well as therapeutic problems.

Fig. 1.—Roentgen "scout plate" of acute obstruction of lower ileum with subsequent perforation and, indicated by arrows, large dose of bismuth subnitrate, given "to control diarrhea," lying free in the peritoneal sac. The patient was treated expectantly and recovered.

In this series of instances of acute intestinal obstruction, twenty-four patients died (41 per cent). Since such high mortality is possible when there exists the closest teamwork between internist and surgeon, no further emphasis is needed to demonstrate that acute intestinal obstruction is an emergency of first rank and to suggest that at present, perhaps, the situation is not so well handled clinically as it might be. High as is the mortality in this series, it should be mentioned that the mortality is approximately 100 per cent when the condition is not recognized or is diagnosed and treated late. Certainly, lateness in recognition, particularly in the aged, was responsible for numerous deaths among our patients.

MATERIAL

This report summarizes experience with fifty-six patients affected with acute, intestinal obstruction. Fifty-

* Read before the Section on Gastro-Enterology and Proctology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

two had abdominal section; two came to autopsy without operation, after perforating; two recovered without operation. In the last two patients, proof of acute intestinal obstruction was adequate, clinically, at the time, and later was proved by roentgen and physical examination. I am indebted to my colleagues, particularly to Dr. Nelson M. Percy of Augustana Hospital, for help and opportunity to study records and operative and pathologic observations.

Space does not permit a complete statistical study of this series; in fact, on this occasion, such seems neither necessary nor desirable. I shall avoid all tabulations but those needed to clarify or emphasize my observations.

There were thirty-five women and twenty-one men in the series. The average age, for the group, was 40.9 years; for women, 48.5 years (a range of from 20 to 68 years), and for men, 31.2 years (a range of from 6 months to 66 years). The patients came from families of moderate circumstances; there were no malnourished or destitute folk on whom any major operative procedures would not be well borne or who, through poverty or ignorance, might not consult physicians when illness appeared. Our mortality of 41 per cent, therefore, does not arise because low intelligence or poverty kept patients away from medical management when first they became ill; doubtless the average charity services of large public institutions would return far higher death rates for like types of lesion in the same age groups. High mortality largely is due to the clinical difficulty of differentiating the early and safely managed stages of acute intestinal obstruction from a host of transient, simple forms of digestive or motor, functional disturbances of the intestine, or of common pathologic processes such as appendicitis, disease of the gallbladder, enteritis, pelvic upsets and the like. In fact, in this series, of those dying, only three patients appeared within 24 hours of the onset of trouble, five from 24 to 48 hours, two within 48 to 72 hours and as many as ten later than 72 hours. Several were as late as 150 hours. Other things being equal, the mortality is in direct ratio to the delay in seeking relief.

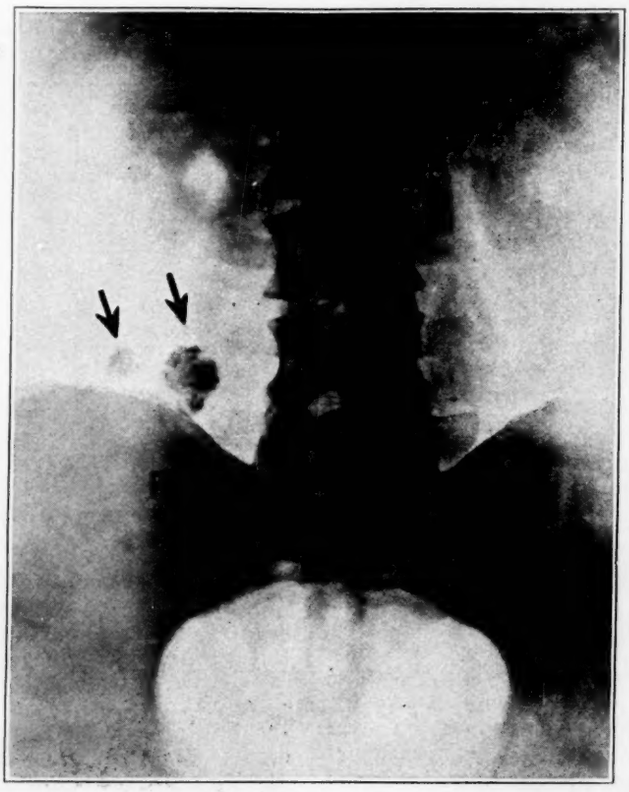

Fig. 2.—Roentgen "scout plate" of same patient as illustrated in figure 1 made five months later showing free bismuth subnitrate, indicated by arrows, lying in peritoneal sac and gradually becoming encapsulated by scar tissue. Patient symptom free with weight gain of nearly 25 pounds (11 Kg.) since initial illness.

CLINICAL PICTURE

1. *Criteria Determining the Existence of Acute, Permanent Intestinal Obstruction.*—These are varied and not so clean-cut as the textbooks suggest. The clinician always should suspect that the "acute abdomen" may mean acute intestinal obstruction and interpret signs and symptoms with that condition in mind, by history, physical and laboratory methods. Then he will have the patient available for management before complications such as peritonitis, perforation or hemorrhage have clouded the picture, or before that state called, loosely, "toxemia" or "acidosis" (recently shown to have peculiar physiologic as well as prognostic significance by experimental surgeons, notably Dragstedt) has supervened.

Within certain limits, the clinical picture also depends on what portion of the bowel is involved. In general, the nearer to the stomach is the obstruction, the more acutely fulminant are the symptoms and the graver is the prognosis. Low intestinal obstruction, even though it is acute in character, gives less dramatic signs of distress, is less virulently toxic, allows longer study and permits a more encouraging immediate prognosis.

The one symptom common to all the patients with this disorder was abdominal pain. It varied in degree, kind and location. Intelligent patients may remember just where the first point of distress appeared; appreciation and consideration of this, roughly, may indicate what portion of the bowel is involved. Usually, the initial pains accompanying small bowel lesions are sharp, cramping or knife-like; they are exhibited in paroxysms. Between the paroxysms, commonly there is diffuse abdominal discomfort. When the lesion involves only the colon, the pain is rarely so paroxysmally exquisite as when the jejunum or the ileum is involved. The normally much slower rate of peristaltic contraction of the colon is not "stepped up" so high in so brief a time. In such circumstances, a greater linear area of smooth muscle is included and the resulting powerful contractile response increases painful tonus less abruptly than when the small intestine becomes acutely obstructed. Hence, the patient with his colon acutely obstructed is rarely found bent double, tossing about in agony and attempting to limit intestinal movements by pressure of the hand on the abdomen or by shallow breathing.

In this series, prostrating paroxysmal pain was the chief initial symptom in 82 per cent of instances of acute obstruction of the small bowel and of 8 per cent of those in which the colon was involved. Of the whole number of patients, these severe "cramps" were a feature of onset in 62 per cent.

Between the paroxysmal pains there appears a relatively comfortable period during which more or less generalized abdominal aching is present. These interim phases are of shorter duration when the jejenum or the ileum is involved than when the lesion is in the colon. This clinical picture persists until the patient is relieved medically or surgically or until such complica-

tions as hemorrhage, perforation or gangrene of the bowel occur. The original course of events—so important diagnostically—then is changed by the local signs, and the constitutional reaction caused by the special complication or series of complications appearing in the particular patient. In such circumstances, unless an accurate early history can be secured, often the only diagnosis possible is that of intestinal rupture and an associated peritonitis. How commonly one has to meet this situation is shown by our group of patients: at hospital entrance, twenty-eight patients (49 per cent) were "stretcher cases," twenty-seven (44 per cent) were at the febrile stage, twenty-eight (51 per cent) were in shock, and the average duration of illness for the series was forty-eight hours (women fifty-six hours, men thirty-four hours). It is the presence of these complications, each serious and each confusing the diagnosis, that is responsible in part for the high mortality.

At onset, of almost equal diagnostic value with abdominal pain, well localized, is vomiting with or without nausea. The vomiting is of the nature different from that of other abdominal conditions: it occurs without irritation by food or fluid intake; it occurs with or closely following paroxysmal pain; it may be continuously present from the beginning; often, it is of almost explosive character; it is not rarely profoundly exhausting and, owing to its robbing the body of fluid and the blood of chlorides—particularly the latter phenomenon—may quickly produce a form of "acidosis" leading to early death, in spite of correct diagnosis and most expert surgical procedures.

Through persistent vomiting, secretion of gastric juice rapidly ceases. Moreover, the composition of the blood may quickly be so altered as not to permit again the production of gastric juice. This changed composition of the blood, occurring as a consequence of prolonged vomiting in intestinal obstruction, may determine the outcome. Such emesis, unlike that of pyloric obstruction, is never accompanied by tetany. This different manifestation, when taken in connection with the chemical examination of the blood, i. e., extremely low blood chloride and alkaline radicals and the appearance of high nitrogen or protein substances, is of diagnostic as well as prognostic significance.

The absence of tetany, even were one not to be aware of the underlying cause of the emesis, disposes of the consideration of pyloric stenosis. The continuance of vomiting, without excessive dehydration and without tetany but with absence of gastric secretion and with the blood serum showing low chlorides and carbonates, no marked calcium deviation, but with progressively high nitrogen values, strongly suggests that the obstruction is in the jejunum, perhaps, occasionally in the high ileum, but, very rarely, in the low ileum and practically never in the colon alone.

For these observations credit is due to the surgical physiologists, notably to Dragstedt and to Ivy. It is unfortunate that the practical value of such studies is not more generally known. If, in instances of "acute abdomens," particularly when intestinal obstruction is suspected, carefully performed blood serum studies were viewed with respect to the information they can contribute diagnostically and prognostically, and if correction of these abnormalities of blood serum were an essential part of the scheme of clinical management, a great reduction in mortality would result. All too frequently now, even in clinics of high repute, expert surgical work for the relief of acute intestinal obstruction is seen to go for naught because no preoperative or postoperative observations have been made on the blood serum. Particularly does this apply in that group of patients in whom vomiting has been a major symptom from the onset of the disorder.

Fecal vomiting, provided the patient previously has been on fairly normal diet, is valuable clinical proof of intestinal obstruction. However, if the patient has long been a digestive invalid, his diet may have been far from normal in quantity or kind, and thus he may have a considerable degree of intestinal obstruction without fecal vomiting being exhibited; e. g., in 32 per cent of the patients in this series. When lesions are in the colon or the terminal ileum, fecal vomiting as a symptom may be lacking. Of the thirty-eight patients in whom emesis was markedly present, fecal vomiting occurred in eighteen (47 per cent). Its appearance had certain diagnostic and prognostic significance, as such emesis occurred only when the obstruction was of the jejunum or the ileum; never when the lesion was in the colon. Prognostically considered, 47 per cent of the patients in whom fecal vomiting appeared died within ten days.

To sudden pain and to vomiting, as symptoms suggesting acute intestinal obstruction, should be added acute constipation. Frequently, this may antedate the other symptoms. In a patient whose frequency of evacuation has been normal, when, without change in diet, in habits or in physical or mental routine, absolute constipation appears acutely, intestinal obstruction of some form or degree should be suspected. The suspicion becomes stronger if abdominal pain and nausea appear. In fourteen patients (25 per cent), acute constipation was sufficiently apparent to make an impression on the patient and to bring him under medical observation. When this symptom occurs prominently, most frequently the lesion is in the terminal ileum.

Bloody dysentery was an onset symptom in six patients of this series. It occurred in three, associated with severe acute abdominal pain, well localized in the right lower abdominal quadrant. In these instances the cause of the obstruction was intussusception. Two of the remaining patients were affected with chronic infectious ulcerative colitis, during exacerbations of which, obstruction and perforation of the low ileum took place. The sixth patient was one with cancer of the hepatic flexure of the colon, with perforation, pericolic abscess and acute obstruction.

Masked Signs of Acute Intestinal Obstruction.—The frequency with which patients appear when the actual signs of obstruction itself have become masked by the signs due to sequelae of the acute obstruction (peritonitis, hemorrhage, gangrene of the bowel) makes imperative a careful analysis of the early history. The records only too rarely show observations indicative of obstruction alone or pointing to the place where obstruction actually was. The average patient had been ailing with an abdominal disorder of acute type approximately two and a half days before he came under observation. While such a time factor made easier the diagnosis of well established intestinal obstruction, the clinical picture permitting accurate recognition of the location of the primary fault was clouded.

Most commonly the abdominal picture was that of impending or acute peritonitis. For the series, temperatures averaged 100.5 F. at first examination, with pulse of 95 and respiration 26 per minute. More than half the patients were "stretcher cases." Evidences that a grave disorder existed were apparent in pain-marked

features, shallow respirations, the flush of fever, physical and mental restlessness and dehydration of the tissues. Examination of the urine almost invariably disclosed albumin and casts. At entrance, twenty-seven patients (49 per cent) were in shock; 60 per cent were febrile and in thirty-five patients (62 per cent) abdominal distention was marked. Visible peristalsis involving the small bowel was recognized in twelve patients (21 per cent) and that involving the large bowel in two. Free abdominal fluid was demonstrated in seventeen patients (30 per cent), in three instances it being due to cancer. After the initial diarrhea, the absence of bowel movement and the persistence of emesis, with or without intake of food (a caution that not always has been followed) proved characteristic for obstruction. Seven patients had been carelessly subjected to violent catharsis before entering the hospital. Five of these patients did not survive the operative procedure; the strong remedies had brought about rupture.

Determination of the Point of Obstruction.—This can be recognized only grossly even if patients are seen early. The high position of localized, abdominal pain, particularly when this pain is associated with visible, enteric peristalsis, nausea and vomiting, suggests jejunal or ileac obstruction. Intake of food promptly aggravates pain and is followed by emesis. In general, the more quickly emesis follows food intake, the more proximal is the point of obstruction. Food of fluid ingestion is rarely followed by early vomiting when the lesion is in the colon. Pain was far more prompt and more severe on food or fluid intake in enteric than in colon lesions. Rectal feeding rarely caused abdominal pain when the obstruction was in the small bowel except in those patients in whom the obstruction was in the small bowel within three feet of the ileocecal valve, and when the patent valve permitted free flow from the colon into the ileum. In those patients in whom some portion of the colon was adherent to the jejunum or to the ileum, the occurrence of pain on food ingestion or on rectal feeding gave rise to confusing conclusions.

ROENTGEN STUDIES

When acute intestinal obstructions are suspected, roentgen studies are to be condemned if such studies include the employment of barium mixtures. Four patients of this series had had x-ray progress-meals administered after there had accumulated sufficient proof, clinically, that an acute abdominal lesion existed. In all instances, the stimulus of the opaque meal, combined with the weight of the digestively inert barium, resulted in the acute intestinal obstructions being converted into acute intestinal perforations; the barium lay free in the peritoneal sacs (figs. 1 and 2). Only one patient recovered.

At times, certain valuable information may be secured by the roentgen study of the gas-filled loops of bowel. In the films, it may be possible to demonstrate approximately where the obstruction lies; at least, one may state with fair accuracy that the obstruction is in the small and not in the large bowel There are instances in which sufficiently sharp gas shadows are presented to enable the practitioner to make a definite diagnosis of a jejunal, in contradistinction to an ileac, obstruction. If roentgenograms can be made without loss of time and without unduly moving the patient about, they should form part of every routine examination. Not only may these "scout films" give information that is valuable diagnostically, but study of the gas shadows may prove of great help in aiding the surgeon better to plan his operative procedure. When perforation of the bowel already has taken place, and when the patient had previously been taking medicine such as bismuth, the shadow cast by the escaped opaque substance may indicate exactly where the perforation is.

In such circumstances, films serve as cautions against immediate operation. Proof of free-lying bismuth, shown roentgenologically, suggests a waiting policy that may save the patient's life.

PHYSICAL SIGNS

Physical examination of the abdomen is often disappointing should one expect positive information. If the patient is seen very early, a small (intussusception) or a large (cancer or abscess) swelling may be seen at or near the spot where the obstruction is located. This may also be a point of maximum tenderness on palpation. If the patient is not fat, one may at times see or feel peristaltic activity in the bowel proximal to the obstruction.

However, the picture changes so rapidly that on entrance to the hospital very few of the classic or textbook signs of obstruction are present. The abdomen resembles that common to any acute inflammatory process. In this series, abdominal distention was exhibited by twenty-five persons (42 per cent), free abdominal fluid by thirty-one (55 per cent), a mass or swelling more or less well defined by eighteen patients (32 per cent).

Peristaltic movements were not visible so frequently as is commonly assumed; for the whole group of fifty-six patients, they were seen in but eight instances (14 per cent). So-called ladder patterns were observed only three times. The operative observations in patients exhibiting visible peristalsis were: a band across the lower ileum; a band from the low ileum to the navel; intussusception of terminal ileum and ileocecal valve; obstruction of the descending colon; a band from the high jejunum to the stomach; a band from the ascending colon to the jejunum; a band involving both the lower jejunum and the low ileum, and five distinct adhesions between the hepatic flexure of the colon and the jejunum. Bulging navel was noted in six patients (10 per cent).

Certainly, in view of the definite and often extensive pathologic condition demonstrated at operations or at autopsy, the physical examination of the abdomen disclosed little of a "characteristic" nature. Indeed, our correct preoperative diagnosis of acute intestinal obstruction (forty-seven instances, or 84 per cent) would not have been possible had we relied only on the examination of the patient and had we disregarded a careful step-by-step history of exactly what happened symptomatically from the beginning of the illness.

As I have mentioned, fifty-two patients experienced abdominal section: two were hopeless as surgical risks, being practically moribund on entrance; two were so ill that laparatomy was deemed not wise. These two went on to perforation, localized abscess, were desperately ill, but made complete recovery in nine and fourteen weeks, respectively. In both instances the obstruction involved the ileum. The outcome of these two patients would appear to indicate that, oftener than is suspected, acute obstruction of the low ileum, where the surgical risk is great, might be treated best expectantly. If the shock of perforation is survived and the infection can be localized, spontaneous short-circuiting takes place and recovery is possible.

NATURE AND LOCATION OF THE OBSTRUCTION

In this series, the causes of the acute obstruction were considerably varied. It is interesting to note that, prior to the acute obstruction, more than 60 per cent of the patients already had had from one to as many as seventeen abdominal operations. The effects of these operations were important in the later production of acute obstruction.

Commonly enough to give the impression that previous abdominal operations were responsible for later acute obstructions was the incidence of "bands" and adhesions in the production of the disturbance. However, since Bryant has shown how frequently omental, mesenteric and intravisceral bands or adhesions are present in the embryo and the new-born, one must be cautious in ascribing the presence of such obstruction-producing agents to previous surgery.

In this series, acute obstruction from bands and adhesions occurred in forty-four patients (79 per cent). Their most common site was in the right lower quadrant, affecting the ileum most frequently. The mid and upper jejunum was next in point of frequency. Then followed in order the sigmoid, the transverse and the ascending portions of the colon. Volvulus was observed in the ileum or the jejunum five times; intussusception (through the ileocecal valve) twice; hernia of the ileum through the broad ligament three times; involvement of the ileum with the ovary and tube, three times; cancer, perforating and followed by abscess which involved the lower ileum or the jejunum, three times; acute ileus, twice; ulceration of the ileum with perforation and obstruction, three times; adhesive obstructing bands from the viscera (gallbladder, stomach, spleen, liver) six times; mesenteric thrombosis, once.

The obstruction was so acute and so complete that gangrene complicated the operative procedures, requiring resection of the viscera, in thirteen cases. The mortality was 85 per cent in this group in spite of prompt action, skilled surgery, blood transfusions, draining the proximal portion of the affected intestine and all known forms of supportive treatment. Those patients who had been given strong cathartics before entering the hospital fared particularly poorly. Certainly, in all patients in whom usually the bowels have moved normally, the appearance of acute constipation, with nausea and with or without nausea or vomiting, contraindicates catharsis: simple enemas are often a life saving measure and usually give comfort.

MANAGEMENT

While all patients in whom acute intestinal obstruction is diagnosed or is suspected are immediately or, potentially, surgical subjects, the internist may be of help in sending the patient to the surgeon as a reasonably good operative risk. Mouth feeding should be interdicted, gastric or intraduodenal lavage by the Rehfuss tube (introduced by a stiff wire stylet) begun early, catharsis forbidden and fluid (physiologic solution of sodium chloride or Ringer's solution) given into the colon by rectal drip and constantly. Abdominal examination, made early and often repeated, may locate the place of obstruction and give information relative to the occurrence of gangrene, perforation or abscess. "Scout films" should be made whenever possible; study of the gas shadows may prove of great importance in locating the obstruction, giving information as to the degree of proximal dilatation, indicating a perforation or aiding the surgeon in planning operative procedure. The leukocytes should be counted hourly; an ascending count, with frequent and thready pulse, means extension of inflammation and a bad prognosis. So, also, does a lowered count, when the leukocyte response had originally been brisk, particularly when accompanied by a drop in temperature and rise in pulse, but a fall in blood pressure. Peristalsis should be stopped by injections of morphine, preferably given intravenously when shock is present. Locally, if perforation or gangrene is suspected, attempts should be made early to localize the pathologic condition by the application of ice bags. If perforation has not taken place, large, hot dressings saturated with alcohol and boric acid should cover the abdomen.

As early as possible, studies of the blood chlorides, carbonates, calcium and nonprotein nitrogen should be made, particularly in the presence of constant regurgitation or vomiting. Falling of the alkaline radicals with increase of the nitrogenous bodies indicates a bad prognosis unless there is prompt and vigorous attempt made to counteract the phenomenon by continuous administration (preferably, intravenously) of solutions of sodium chloride and sodium bicarbonate or Ringer's solution. This procedure often is a life saving one, whether instituted before or after surgery or both.

And, finally, from the beginning, the internist should be in the closest cooperation with a skilled, conservative and scientifically trained surgeon.

920 North Michigan Avenue.

ACUTE INTESTINAL OBSTRUCTION *

IRVIN ABELL, M.D.
LOUISVILLE, KY.

The most important single factor in the clinical consideration of acute intestinal obstruction is the element of time; a second one of great moment is offered by the site and character of the obstruction, whether high or low, the former pursuing a more rapidly fatal course than the latter. The precise significance of these two factors becomes apparent with a full realization of the sequence of events common to all types of acute intestinal obstruction; namely, mechanical obstruction of the intestine with stoppage of the fecal current, damage to the bowel wall with ultimate gangrene and peritonitis, and an associated production of toxins often of the most virulent type. The high mortality that has obtained and still obtains in the treatment of intestinal obstruction is a serious indictment of both diagnostic ability and surgical initiative.

A study of accumulated statistics reveals what is common knowledge, to wit, that, while acute intestinal obstruction carries an inevitable mortality, the greater portion of the mortality may justly be attributed to delay in recognition and to tardiness in the institution of appropriate surgical treatment. The research workers by their physicochemical studies of the body fluids have afforded much valuable aid in the appreciation of the changes in body chemistry with the indication of means to assist in the restoration of the latter, but the underlying fact, with which all adjuvants must be correlated, is that the obstruction is mechanical and must needs be corrected mechanically. The solution of the problem in the early hours following the advent of obstruction, when but simple obstructions are present, may require nothing further; the mortality is low and the results are

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brilliant if the obstruction is relieved before the wall of the bowel is compromised by pressure or strangulation, volvulus or thrombosis. With the incidence of the complications dependent on strangulation and toxemia, which invariably follow the continued presence of the obstruction, the relief of the obstruction becomes but one of the indications to be met and the risk of any operative procedure is enormously enhanced.

Since early detection is of such overwhelming importance, I cannot forbear stressing the points leading to a diagnosis, even at the risk of being tedious from reiteration of that which has already been presented. Unfortunately, an attitude of ultraconservatism in diagnosis, awaiting the onset of symptoms that prove the presence of obstruction but also indicate the approach of dissolution, has been, if not the accepted rule, then one quite commonly followed. It is an unpardonable mistake to spend invaluable time in making differential diagnoses when symptoms of an abdominal emergency are evident. The presence of abdominal pain, vomiting and constipation with an absence of fever and leukocytosis should put the burden of proof on the medical attendant to show that no obstruction exists. The history, particularly if previous abdominal ailments are indicated, the physical examination, the presence of active peristalsis, visible or audible, with the flat roentgenogram interpreted by a competent radiologist, in addition to the three cardinal symptoms mentioned, should permit of a working diagnosis before the accession of fever, leukocytosis, distention and paresis indicates changes brought about by strangulation, and chemical examination of the blood shows profound alterations. Morphine and purgatives, as characterized by Haggard, but compound the felony of delay. The former, with its relief from pain affording the patient a false sense of security, denies him the relative safety which early operation offers and lets him drift into the dangers of delay, while the latter merely increases the damage which an already active peristalsis inflicts.

The principles underlying the surgical treatment of acute intestinal obstruction may be discussed under three headings: the preparation of the patient, the operation, and the postoperative treatment.

PREPARATION OF PATIENT

The preparation of the patient will of necessity depend on the condition presented at the time of coming under observation, which in turn will depend on the location of the obstruction and the duration of its existence. If the duration of the obstruction has been short and the vomiting not excessive, the routine preparation for abdominal section will suffice with the added precaution of emptying the stomach and rectum, if perchance the latter has escaped the repeated enemas given as routine. When the vomiting has been excessive, which it usually is when the obstruction is situated high in the small bowel and when the duration of the obstruction has permitted the development of toxicity and dehydration, operation should not be undertaken until measures looking toward their correction have been instituted. The blood of such patients will show a decrease in the blood chlorides with a rise in its carbon dioxide combining power and a coincident rise in the nonprotein nitrogen and urea. The lost chlorides should be replaced with sodium chloride in solution, both subcutaneously and intravenously, from 1 to 2 per cent solution for the former, and from 3 to 5 per cent solution for the latter method of administration. In both instances it should be given slowly to prevent pain and, as well, damage to the tissues with which it comes in contact. Orr, with whose name much of the splendid blood research work in intestinal obstruction is connected, is of the opinion that the sodium chloride not only restores the normal balance in the blood but also acts as a definite therapeutic agent in overcoming the abnormal chemical changes found therein. Water should be given in abundance, subcutaneously and intravenously, to overcome the dehydration and, in those patients in whom starvation is evident, nourishment is to be added in the shape of dextrose. The technic of venoclysis as devised by Hendon, consisting of a special needle and fluid container, permits of a simple and satisfactory method for the continuous intravenous administration of fluids, water, saline solution, dextrose and citrated blood; the needle may be kept in the vein without change for as long as five days and the character of the fluid in course of administration may be changed at will. Blood transfusions in depleted patients are of definite help and may be given by this method with the least annoyance to the patient.

OPERATION

The cure of acute intestinal obstruction depends on the removal of the obstruction by surgical operation. The operation in simple obstruction may likewise be simple, while with strangulation and toxemia it can never be so classified. The three main objectives are: (*a*) the removal of highly toxic material from the intestine proximal to the obstruction; (*b*) the relief of the distention that is paralyzing the intestinal musculature, and (*c*) the restoration of the continuity of the intestinal lumen with the reestablishment of the fecal current. The external obstructions are both visible and readily accessible, their one feature presenting at times a difficult problem being the management of the damaged intestine. If a portion of the intestine is not viable, resection is imperative provided the condition of the patient will withstand this amount of operative trauma: if plainly prohibited or if the gravity of the patient's condition is such as to make the wisdom of resection a matter of doubt, the gangrenous bowel should be amputated and the divided ends anchored outside the abdomen—shotgun barrel enterostomy—to be closed later when local and general conditions have improved to the extent of making the operation reasonably safe.

With internal simple obstructions involving the small intestine, the complete operation may be and should be carried out. In cases of advanced obstruction of the small intestine which have not reached the stage of gangrene but in which the circulation of the proximal segment has been impaired by the distention due to the imprisoned gases and toxic fluids, a fertile field is offered for the display of surgical judgment and craftsmanship. The distended intestine makes intra-abdominal manipulation difficult and often renders the recognition of the pathologic anatomy perplexing, while the friability of the bowel wall due to distention with impairment of circulation both at and above the site of strangulation makes anything other than the gentlest handling a matter of great hazard. Evisceration as a routine in such cases is contrary to sound surgical practice, it being a maxim that the less manipulation the greater the percentage of recoveries. However, I have not hesitated to employ evisceration in those cases in which the visualization and accessibility of the site of obstruction made it necessary. After the obstruction has been released, the distended intestine is emptied of its septic and toxic contents before it is returned to the abdomen; thus the necessary drainage of the distended

bowel is accomplished and at the same time its return to the abdominal cavity is facilitated. The enterostomy opening may be closed or utilized for a more prolonged drainage as the exigency of the case may require.

In the advanced cases presenting dehydration, starvation and toxicity, the institution of appropriate measures for their correction still leaves the surgeon in a quandary in making a choice between the liberation of the obstruction with drainage of the distended intestine and being content with the latter procedure alone. Many lives have been saved that would otherwise have been lost, by the performing of a jejunostomy or enterostomy near the site of obstruction under local anesthesia, the release of the obstruction being reserved for a later date when the absence of toxicity and a return of the bowel wall to its normal integrity make the necessary operative manipulation both safer and easier. It would seem that better drainage is obtained with the lower enterostomy and that it is more susceptible of spontaneous closure than jejunostomy. The stomach and duodenum can be effectively kept empty by an indwelling gastroduodenal tube. The employment of enterostomy alone is quite naturally reserved for the more desperate cases and offers no opportunity for determining the character of the obstruction or the condition of the intestine at the site of obstruction. Should the bowel be gangrenous, death from peritonitis is inevitable, since resection or amputation with the formation of a gun barrel enterostomy offers the only opportunity of averting such an issue.

When the site of the obstruction is in the large bowel, granting that the lesion is not one productive of gangrene such as volvulus or hernial strangulation, enterostomy is the primary treatment of choice. Obstructions in the colon are devoid of the acute toxic manifestations noted with those situated in the small bowel, although the sequence of stoppage of the fecal stream, strangulation, gangrene and peritonitis are much the same, if of slower progress. The disparity in size between the large and the small bowel makes for difficulty in anastomosis, while the edema and vascular changes in the colon proximal to the obstruction greatly hamper accurate suturing and correspondingly increase the danger of leakage. The latter impediments are in large measure removed by preliminary drainage, the secondary operation then becoming one of election. In the event of gangrene of the colon, resection, if within the limit of sound surgical judgment, should be practiced; otherwise sequestration of the gangrenous segment outside the abdomen with low ileac enterostomy as a primary procedure followed by restoration of bowel continuity at a later date. The selection of the anesthetic will depend on the character of the proposed operation. Jejunostomy, low enterostomy and cecostomy are readily and best accomplished under local anesthesia. Muscular relaxation is essential for careful and accurate intra-abdominal work, particularly in the presence of intestinal distention and fragility: gas-oxygen with sufficient ether to overcome muscle rigidity meets these requirements. As spinal anesthesia, by suppressing the inhibitory action of the spinal cord, permits excitatory action of the ganglions and promotes intestinal peristalsis, its use has been suggested in paretic ileus. In those cases in which an enterostomy has been done in the course of an advanced obstruction and in which the paresis from distention prevents drainage of more than the coil into which the enterostomy tube has been inserted, the injection of a spinal anesthetic or—what is safer and experimentally accomplishes the same result—blocking of the splanchnic nerves, may be of distinct benefit. It has also been suggested that spinal anesthesia will differentiate between mechanical and paralytic ileus; if, within fifteen minutes after the injection of the spinal anesthetic, passage of gas and feces and disappearance of distention is not obtained, enterostomy should be performed immediately; thus advantage may be taken of the anesthesia already produced.

POSTOPERATIVE TREATMENT

Vomiting is controlled by intermittent gastric lavage or by an indwelling gastroduodenal tube, the patient drinking water as desired, the unabsorbed portion of which returns through the tube without causing any discomfort. The body fluid and nutrition balance is maintained by subcutaneous and intravenous administration of saline solution and dextrose until such time as the resumption of normal peristalsis permits of oral administration. When an enterostomy has been performed it is essential to see that drainage occurs; this can be promoted by hot fomentations to the abdomen, saline irrigation of the intestinal lumen through the enterostomy tube and the cautious administration of solution of pituitary hypodermically. These failing, splanchnic blocking or spinal anesthesia should be tried. When no enterostomy has been done, colonic irrigation is employed in connection with the measures before mentioned to take care of the distention. It may be said in conclusion that while serologic research, choice of operative procedure and refinements in technic have contributed to a worth-while reduction in the mortality of acute intestinal obstruction, the greatest hindrance to its further reduction continues to be the delayed operation.

321 West Broadway.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SMITHIES AND ABELL

DR. JAMES T. CASE, Chicago: What Dr. Abell said about the element of time is of the greatest importance, as we all recognize, lest we await the appearance of symptoms of an impending postmortem rather than symptoms of an early diagnosis of acute intestinal obstruction. I do not quite agree with Dr. Smithies when he says that barium should not be used; however, the so-called scout film should also always be used first, because from the appearance of the intestinal gas and its position in the abdomen one can gain a great deal of definite information. The fact of obstruction is the chief thing of interest. Is there, or is there not, acute intestinal obstruction? If there is, there is only one thing to do, and the sooner it is done, the better. In a case of ileus, the surgeon at the operating table expects to find the dilated intestines when he opens the peritoneum. It is perfectly possible to determine the presence of dilated intestines before operation, and that can be done by the flat film or scout film with no more trouble than is required to change a sheet or to use a bedpan. The patient is lifted by the drawsheet, an x-ray film holder slid under him, the x-ray portable apparatus brought to the bedside, and an exposure of one or two seconds made. The patient has been disturbed but slightly. The film can be developed to make a 14 by 17 inch map, and on that map one can measure intestinal coils filled with the gas which is naturally there in cases of ileus; it is easy to make a relatively accurate estimate of the diameter of the intestinal coils and to say whether the gas area represents the small or the large intestine. So, it is possible in the great majority of instances, without opening the abdomen, to determine the presence of dilated intestinal coils. If the characteristic herring-bone or feathery appearance of the shadow due to the small intestinal folds is not apparent, then I believe it is perfectly feasible to give a small quantity of barium in a dextrose-water mixture by mouth; it is surprising how soon that will visualize the small intestine so that it

can be recognized by another film made four or five hours after the administration. Occasionally a little longer time is required. If the gas is in the colon, one is justified in making attempts to empty the colon by an enema. I never use the opaque material in a case of suspected obstruction of the small intestine until after I have made the scout film; generally there is no necessity of giving a regular meal, for a small quantity of barium sulphate will serve the purpose. Except when an intestinal anastomosis has been done, I do not fear to give a small amount of barium in a dextrose-water mixture.

DR. THOMAS G. ORR, Kansas City, Mo.: In discussing intestinal obstruction, I am conscious of the fact that a mechanical situation which requires surgery is being dealt with and that this is really the important feature, after all. Without surgery, one cannot hope to obtain a cure because of the true mechanical nature of the condition. Paralytic ileus is a different problem and can be relieved without surgical measures in some cases. In the consideration of intestinal obstruction, three events have taken place in the last few years which are quite significant. The first is the chemical study of the blood. There has been found a decrease in the chlorides, an increase in the nonprotein nitrogen, and in most cases of high intestinal obstruction an increase in the carbon dioxide combining power. I do not know what Dr. Smithies' experience has been when he mentions acidosis in connection with these cases. In my experience, if there has been any change, there was an alkalosis. Next in importance is the fact that the upper intestinal tract secretions are extremely important in maintaining life. It has been definitely proved that drainage of the stomach and the duodenum and jejunum will produce death in a few days in experimental animals; therefore, there is something in the upper intestinal juices essential for life. The third joint is an explosion of the old idea that drainage of the so-called toxic materials proximal to the obstruction into the bowel below the obstruction will kill the patient. I do not believe there is anything to that at all; in fact, I think the contrary has been proved, that it would be nice if one could have all of these fluids drained into the normal bowel below to maintain life. This belief is substantiated by the work of Raine and Perry, and White and Fender, and by Wilkie. When doing an enterostomy, it is doubtful whether the chief factor is a drainage of the toxic material from the bowel, but rather a relief of distention in the bowel. In order to obtain results from operation or any treatment, one must get these patients before peristalsis has been abolished. If an enterostomy is done and the bowel is paralyzed, there will be no results. If there is no peristalsis, there is no work, and nothing is accomplished either by the removal of an obstruction or by the doing of an enterostomy. I agree with Dr. Case that enterostomy is indicated in some cases.

DR. ROY D. MCCLURE, Detroit: Twenty-three years ago I read a paper on the experimental production of intestinal obstruction. At the end of the symposium the consensus was for earlier diagnosis and earlier operation. Today the conclusions to be drawn from the papers of Dr. Smithies and Dr. Abell are much the same as the conclusions drawn twenty-three years ago. Some advances have been made. One of the greatest is in the use of sodium chloride, as advocated by Dr. Haden and Dr. Orr. Their work on sodium chloride has been outstanding. I agree with Dr. Smithies—a patient whom one suspects of having intestinal obstruction should be worked up to the limit as far as present knowledge is concerned as to the chemical condition of the blood, and perhaps roentgenograms should be taken. This can usually be done quickly and I agree with Dr. Abell that there should be no unnecessary delays. I believe that the medical man and the surgeon should both see and follow through with the patient suspected of having intestinal obstruction until the patient is at least over the crisis of obstruction. Dr. Abell mentions the type of anesthesia to be used. I have been using spinal anesthesia with increasing frequency. Where any considerable manipulation of the viscera is necessary there is less postoperative distention than I formerly had with general anesthesia. Postoperative distentions sometimes went on to a paralytic ileus, because the bowel was so paralyzed by the preparation given. In the service I had in a New York hospital a little over twenty years ago, a preparation for any major operation was used which was extremely damaging to the intestinal function. The patient was given 2 grains (0.13 Gm.) of mild mercurous chloride, half a grain every half hour for four doses with 10 grains (0.6 Gm.) of sodium bicarbonate followed in the morning by magnesium sulphate. After his bowels moved he had an enema. During the night he had a soap enema and in the morning a sodium chloride enema. Postoperative distention was the rule. Today, without preoperative cathartics, postoperative distention is almost nil compared with what it was then. So, paralytic ileus is less frequent. Prophylaxis against intestinal obstruction is as possible as in some of the other diseases. Polyps, benign or malignant, carcinoma, ulcers and constricting adhesions can be diagnosed and treated early before obstruction develops.

DR. WALTER A. BASTEDO, New York: I wish to emphasize two points. In the recent past I have had two cases of obstruction from femoral hernia, both in elderly women, one of them 83. In each case at least five days had elapsed since the first pain came on. In the 83-year-old woman, it had been seven days since the first pain came on, and five days since the last feces had been passed. There was evidently obstruction, and as the patients were so old, I supposed that they might have carcinoma. Both were fat and tremendously distended and it was difficult to recognize anything. Their abdomens were tender everywhere, but on palpating in the routine way in one patient I found a little femoral hernia on the right side. There was a delay of twenty-four hours in operation because others would not agree, and the patient died. In the 83-year-old patient the hernia was on the left side. I was not sure of it but there was great tenderness at the femoral region, and I thought a hernia probable. The surgeon in that case thought it was the more usual splenic flexure carcinoma and made the cut high up, but after going in high up he found he had to make a second cut, which he might have avoided if he had realized or thought with me that perhaps there was a femoral hernia. The patient made a complete recovery. The other point I want to speak about is this: If the physician fools around with these patients a little overlong and then calls a surgeon, he can hardly expect him to agree with him at once, on seeing the patient for only fifteen minutes and talking with him. The surgeon should be brought in early so that he can see the patient two or three times. Over and over again, I am sorry to say, with the most eminent surgeons, I have had a delay of twelve or twenty-four hours because at the first visit it was impossible for me to convince the surgeon of the diagnosis.

DR. OWEN H. WANGENSTEEN, Minneapolis: Forty-one years ago when the treatment of intestinal obstruction was discussed at the German Congress of Internists convened at Wiesbaden, Fürbringer stated that the mortality of medical treatment of acute bowel obstruction was 66 per cent—a mortality no higher than with surgical treatment. A year previously, the same topic was the subject of a symposium in which Reginald Fitz and Nicholas Senn presented the medical and surgical aspects, respectively. A mortality of 70 per cent for both types of treatment was reported. It was agreed that, after two days of medical conservative procrastination, patients with acute bowel obstruction should have the benefit of what little surgery had to offer. Today, although it is universally acknowledged that patients should be operated on as soon as the diagnosis is made, the general mortality is almost as high as it was forty years ago. What is most needed is a better understanding of the early criteria on which a diagnosis can be made. It is significant that simple bowel obstruction is the only abdominal disaster that presents early no local physical conditions suggestive of the presence of a serious intra-abdominal lesion. Strangulation obstructions, because of the infarction of the bowel, of course produce abdominal tenderness and rigidity. In a patient, complaining of intermittent crampy abdominal pain followed by nausea and vomiting, who exhibits no local physical conditions, simple bowel obstruction should be suspected. A physical sign of great importance in the diagnosis, not mentioned by either of the authors, is auscultation of the abdomen. It is my experience that peristalsis is usually visualized only in subacute or chronic obstructions; but loud intestinal borborygmi may be heard with the stethoscope, and, if dilated coils are present, sounds of metallic character are often

made out, a finding almost pathognomonic of bowel obstruction. If a single plate is made of the abdomen and gas is seen in the small intestine, the diagnosis of acute bowel obstruction is established. Gas is normally present throughout the intestinal canal, but in adults it is visualized normally only in the stomach and colon; the intermixture of gas and fluid is so intimate in the small intestine that gas is not visualized on the roentgenogram. Gas in the small intestine is therefore synonymous with intestinal stasis.

SIGMOIDOSCOPY VERSUS X-RAYS IN THE DIAGNOSIS OF TERMINAL BOWEL DISEASE *

FRANK C. YEOMANS, M.D.
NEW YORK

During the period of thirty-five years since Professor Roentgen discovered the x-rays and Howard Kelly introduced standard rectoscopes, refinements in the technic of roentgenology and improvements in proctoscopes have made these two agents prime factors in the diagnosis of gastro-intestinal diseases. Each method has its indications, advantages and limitations, and frequently the two are mutually helpful in reaching a correct diagnosis.

The roentgen ray has a wide range of applicability and has proved its value in the diagnosis of gastro-intestinal lesions, notably in the movable portions of the tract, as the stomach and colon; in demonstrating position, contour, function, points of stasis and defects indicating pathologic changes. In the relatively fixed rectum and distal sigmoid colon, however, which are situated largely within the bony pelvic girdle, the x-rays are of comparatively limited value. Prominent defects are that:

(*a*) An important lesion may be missed entirely.

(*b*) Although the site and apparent extent of a lesion are discovered, especially if it is of a stenosing character, its nature is frequently not disclosed.

(*c*) In many cases, interpretation of the image is so uncertain as to cast grave doubt on the diagnosis.

The x-rays are now so generally available that all too frequently when the patient presents symptoms referable to the distal bowel the physician at once refers him for a gastro-intestinal series. This is unfair to both the patient and the roentgenologist. It deprives the latter of invaluable data and frequently imposes on the patient loss of time and the expense of a prolonged indirect search for what can be directly felt or seen. Moreover, the nature of an accessible lesion frequently remains in doubt and serious conditions at their onset are easily misinterpreted. For example, amebic colitis in its early stages or before secondary infection of the ulcers has occurred may present the same symptoms and roentgen appearance as ulcerative colitis but, viewed through the proctoscope, the early lesions are characteristic and pathognomonic. A smear from a typical ulcer, examined at once on the warm stage of a microscope, reveals motile amebas and clinches the diagnosis.

On the other hand, a negative roentgen report, as for example in the case of a small tumor, instils a false sense of security. Meanwhile the lesion that was missed develops apace and the most favorable time for its treatment is lost. This is evidently due to the fact that an insufficient number of men are being trained to do a competent proctosigmoidoscopy and to interpret the observations. To correct this deficiency every hospital and diagnostic group should have associated with it a trained and competent proctologist.

Without in the least disparaging the diagnostic merit of the x-rays, my purpose is to stress that in examination of the terminal bowel the usual order of procedure should be reversed, sigmoidoscopy being first in order. Endoscopy usually establishes the diagnosis of lesions in the rectum and the pelvic colon. When the observations are negative or if the pathologic condition found seems inadequate to explain the symptoms, a roentgen study should always follow the endoscopy. Even negative endoscopic observations are valuable data for the roentgenologist.

The important reason for emphasizing early endoscopy is that the vast majority of pathologic lesions of the large bowel are limited to or involve the rectum or pelvic colon; namely, practically all cases of simple colitis; the specific infections—amebic, bacillary and gonorrheal; 90 per cent of organic strictures; 70 per cent of nonmalignant tumors, and 75 per cent of large bowel carcinomas.

The x-rays comprise the best available agent for determining the extent of involvement in ulcerative colitis and in detecting tuberculosis of the cecum; it is our chief reliance in demonstrating diverticulosis of the colon and especially diverticulitis of the sigmoid, and rarely it may discover a double primary carcinoma in different colonic segments.

Digital examination should always precede rectoscopy. Nothing else is so conclusive as palpation for organic lesions of the lower 8 to 10 cm. of the rectum and it is the only means of detecting lymph node recurrence of carcinoma beneath an intact mucosa.

A satisfactory proctosigmoidoscopy implies introduction of the tube into the pelvic colon, which can be accomplished in more than 70 per cent of cases. The normal anatomic limit of advancement is the apex of the sigmoid loop, which varies from 10 to 14 inches from the anus. Standard textbooks on proctology give the correct technic of sigmoidoscopy but, naturally, as in esophagoscopy or cystoscopy, experience is essential for correct interpretation of the pathologic changes revealed. Requisite to obtain the full benefit of bowel endoscopy are calibrated tubes of various lengths and diameters, electrically lighted and fitted with an eyepiece for air inflation when needed.

In stenosing lesions, such as strictures or neoplasms, the tube of one-half inch diameter can usually be passed without difficulty through the lumen to the uninvolved area above, thus determining at once their limits. If painful lesions of the anal canal with sphincteric spasm are present, the tube of small diameter is imperative for successful examination unless the parts are first anesthetized by a topical application or by local infiltration.

The dangers of injury or perforation of the bowel wall can always be avoided if the tube, after passing the anal canal, is advanced, as it should be, under guidance of the eye in the axis of the bowel lumen, aided by atmospheric pressure and, when necessary, by light puffs of the pneumatic bulb.

Important data obtainable by proctosigmoidoscopy are:

1. Reaction of the bowel contents.
2. Condition of the mucosa; atrophic or hypertrophic catarrh.
3. Infections; amebic, bacillary, hemorrhagic, gonococcal, and chronic ulcerative colitis (nonspecific).

* Read before the Section on Gastro-Enterology and Proctology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

4. Ulcers; tuberculous, syphilitic and the large solitary (callous) ulcer.

5. Stricture; fibrous or inflammatory.

6. Nonmalignant growths; number, situation, distribution and character.

7. Malignant tumors, most commonly adenocarcinoma, and their extent of involvement.

8. Invagination of the pelvic colon into the rectum (third degree prolapse of the rectum).

9. The nature of a rectosigmoidal constriction, whether inflammatory or malignant, and whether intrinsic or extrinsic.

10. Discovery of amebas, when present, from material collected on sterile swabs and examined immediately. This material is available for smears and cultures from which autogenous vaccines may be made.

If doubt exists as to the precise nature of an ulcer, stricture or neoplasm, *biopsy* should be done forthwith and the site of removal treated with 95 per cent phenol followed by alcohol. The data thus obtained are of prime importance in the diagnosis, prognosis and rational treatment.

The following cases are cited briefly for illustration. The roentgen studies and reports were made by thoroughly competent roentgenologists.

REPORT OF CASES

CASE 1.—W. M., a man, aged 44, during the three weeks previous to examination had dull pain in the lower part of the abdomen and occasionally had some fresh blood in the stools, which occurred once daily. A series of roentgenograms that had been made during the injection of barium showed a spotted appearance of the barium in the lower part of the sigmoid; there was suggestive evidence of polypi of the lower part of the sigmoid. Abdominal palpation showed a tender sigmoid loop; sigmoidoscopy to a depth of 13 inches disclosed no polypi or ulcers but a congested, beefy mucosa (colitis), which cleared up promptly under treatment. The spotted appearance was evidently due to the irritability of the involved segment.

CASE 2.—G. H., a man, aged 65, was admitted to the hospital with the diagnosis of intestinal obstruction. At about the middle of the sigmoid or just above its junction with the rectal ampulla was a long jagged defect. Differential diagnosis between carcinoma and abscess could not be made. The observations indicated a definite organic lesion. The rest of the colon filled poorly with barium. Sigmoidoscopy showed at 7 inches above the anus a pedunculated tumor the size of an almond, which was removed with the electric snare and proved on histologic examination to be an adenoma.

CASE 3.—H. D., a man, aged 66, during the four months previous to examination averaged six stools daily, with some fresh blood at intervals. In the roentgenograms made after evacuation of the barium enema, two polypi, one on the right and one on the left side, at the junction of the sigmoid and rectum, were shown fairly distinctly. These were not shown at all when this part of the colon was completely filled with barium. Digital palpation and proctoscopy showed two polypoid growths just above the anal ring on the anterior rectal wall, the base of the larger being 3 cm. long by 1 cm. broad. The rectum above this point and the pelvic colon were normal.

CASE 4.—A physician, aged 73, always in good health but constipated, had a sudden intestinal hemorrhage two days before examination. Sigmoidoscopy at this time disclosed at a depth of 8 inches an early ulcerated neoplasm, biopsy of which showed adenocarcinoma. Roentgenographic and fluoroscopic study of the gastro-intestinal tract revealed multiple diverticula of the sigmoid, and incomplete stricture at the lower end of the sigmoid, the involved area being about 4 cm. in length, a portion of involved sigmoid wall at this place retaining power of contraction. These changes were those exhibited in a scirrhous type of new growth. The roentgenograms demonstrated the diverticula. This case illustrates in a striking manner the diagnostic value in certain instances of roentgenograms combined with sigmoidoscopy.

CONCLUSIONS

1. Sigmoidoscopy is indicated and should be performed in every case presenting intestinal symptoms.

2. Sigmoidoscopy usually gives more accurate and precise data in diseases of the rectum and pelvic colon.

3. Obtainable data frequently establish a correct diagnosis promptly, which is an economy for the patient and gives valuable information to the roentgenologist.

4. Endoscopy should precede the roentgen study.

5. Every general hospital and diagnostic group should include a competent proctologist on its staff.

171 West Seventy-First Street.

ABSTRACT OF DISCUSSION

DR. JOHN L. JELKS, Memphis, Tenn.: Two weeks ago I saw a case of fecal passage from the bladder. Proctosigmoidoscopy effectively excluded the rectum and sigmoid as the site of the perforation. Definite pathologic changes and characteristic mucopus of amebiasis were seen, which directed laboratory examinations and proved the correctness of the clinical diagnosis. These examinations and the diagnosis would have been embarrassed by either a barium or a bismuth enema, both of which are parasitocidal and should never be used prior to proctosigmoidoscopy and microscopic examinations when there is an ulceration that might be parasitic. Later, a roentgen study was made and cystotomy was ordered, and at this time it was easy to palpate a cancer mass which involved the colon above instrumentation. Often small adenomas and ulcers are found which x-rays cannot reveal. The appearance of the intestinal mucosa is often a factor which x-rays cannot reveal. A careful observer of pathologic changes of the throat needs no less the x-rays in streptococcic or tuberculous or Vincent's infections of the throat and buccal mucosa than does one who observes the same pathologic changes in the intestine. These statements should in no wise minimize the importance of roentgen examinations, which should come in proper sequence. There are conditions in the colon and sigmoid which seem to be remote from an actual pathologic condition in the intestine at that point. I refer particularly to those conditions which are observed especially in the South, where pellagra and flagellosis are so prevalent; when there is not so marked a pathologic condition except in cases of mixed infections, x-rays would show a marked spasticity. No clinical assembly of physicians should be without a competent man to make proctosigmoidoscopic examinations, a competent pathologist, a competent bacteriologist and a competent protozoologist. There are less than a hundred men in this country who can properly diagnose by laboratory study the different protozoa in this country or can even classify the known pathogenic amebas.

DR. LOUIS J. HIRSCHMAN, Detroit: I don't like the word "versus," in the title of this paper. There is no conflict or controversy between different diagnostic methods. They should go hand in hand. I agree with Dr. Yeomans that the sequence of diagnosis has been reversed. I, too, have seen patients with something wrong with the colonic or rectal function and yet the gastro-intestinal roentgenograms did not seem to show it. The proctologist made the diagnosis immediately. Why does one make a complicated roentgenologic study of anything that is in the range of one's eyesight or in the reach of one's examining fingers? Many pathologic entities in the lower bowel can be seen with the proctoscope and felt with the finger. Fluoroscopy should also be used. I don't believe in films alone. This is one time when a fluoroscope should be employed. Fluoroscopy enables one to see the changes in position and the different variations in physiologic or pathologic motion, with the roentgenologist who, after all, is a consultant. One should not be satisfied with positive conditions in the lower bowel, but after one has seen as far as one can see, and felt as far as one can feel, x-rays, barium enemas and manipulation should be used to make sure that there is nothing else higher up that will go undiscovered. I have had the experience of seeing a large polyp through the sigmoidoscope, but after following up with the x-rays I found, besides, a carcinoma of the median colon.

I have a case of carcinoma of the rectum and another of the sigmoid with an area of 4 inches of healthy bowel between. The sigmoidoscope alone should not be relied on. The time may come when there may be a floating camera that the patient can swallow, and under radio control, television will come into effect, and it can be stopped when one wishes as it goes on its peristaltic journey, by touching a button, and then have it pass out. Until that time comes, the x-rays will have to be depended on for examining parts of the alimentary canal that one cannot see.

DR. CURTICE ROSSER, Dallas, Texas: Unquestionably, so far as proctologic opinion is concerned, the proper order of procedure is as described: proctoscopy followed by roentgenoscopy of the colon and, if no evidence of obstruction is found, by a gastro-intestinal series. As a matter of fact, this gives one, in addition to the favorable situation mentioned by Dr. Yeomans, a field clear of barium in the rectum for proctoscopy and a colonic picture unobscured by barium in the small bowel. There is a tendency in medical gatherings to discuss in detail exact methods of diagnostic procedures, overlooking the concrete fact with which we as proctologists and gastro-enterologists continue to be faced, that our real problem continues to lie not in determining how to make examinations but in our inability to obtain a patient to diagnose during earlier stages when treatment of any kind is efficacious. The, bismuth and paregoric regimen continues to hold the diarrheic individual for three to four, to six months before he gets to a gastro-enterologist. Bleeding cancers come from twelve to sixteen months after symptoms develop and the mortality has been more greatly increased by this fact than by any reversal of the proper order of examination.

DR. FRANK SMITHIES, Chicago: I presume it is occasionally necessary to have a perfectly obvious paper like this to check us on what we think we are doing right or what we think we are doing wrong. I always understood that the proper scheme of procedure was the examination of the fresh stool, the proctoscopic study and the gastro-intestinal series. I haven't heard many of the proctologists speak of the examination, and the frequent examination, of the freshly passed stool. They have relied largely on looking 30 cm. up and then "cussing out" the roentgenologist and the internist because they did not see anything; also they have had the idea that the internist had interfered with their own examination. I can't see how anybody could detect anything from x-rays like the ones that have been presented, even the x-ray man himself. If one is to do a roentgen examination, he must do it properly, with a progress meal, fluoroscopy, enema plate and the like. So far as proctoscopy is concerned, that, too, must be done properly. Dr. Jelks has said that there are not more than a hundred men in the country who can classify parasites. I could say there are not a hundred men in this country who can do a proctoscopic examination. Many times I see polyps, carcinomas and ulcers that have been missed, because a patient during proctoscopy is placed on the right or left side, or put in a knee-chest position on a table so high that all one can get is a glimpse of the internal sphincter. If proctoscopy is to be done, it must be done right, on a proper, special table, with proper air inflation, and with the patient in a position so that something may be seen if it is there. I had a proctologist recommend the removal of a section of bowel on account of a tumor. There was a tumor, but it was secondary to a mesothelioma of the left kidney. A proctologist should be an internist first and he should be perfectly familiar with his own line of examination, which all too frequently he is not. He should also realize that what he sees is not the whole story. Dr. Hirschman hinted at that. The proctologist should remember, particularly with regard to protozoic infestation, that when he gets, from a bit of mucus, active protozoa such as *Endameba*, the lesion is far advanced and he is not diagnosing an early protozoic infestation of the alimentary tract.

DR. MAX EINHORN, New York: I fully agree that no method of examination of the rectum should be omitted in making a diagnosis, and the simpler the examination, the better. If a mass can be felt with the finger in the rectum, a diagnosis can easily be made. The proctoscope can be used in addition, but there are conditions in which a diagnosis is impossible or difficult, even if every aid to diagnosis is used.

DR. DESCUM C. MCKENNEY, Buffalo: I wish to emphasize the importance of a position for sigmoidoscopic examination such as one gets with a Buie or Hanes table. The patient must be stood on his head, practically speaking. Another thing, in making all rectal examinations, the man who does it properly not only studies the lower end of the bowel but also takes into consideration the troubles farther up. Recently I saw two men, aged 36 and 71, respectively. Both had hemorrhoids so large that they acted as rubber rings to sit on and explained their bleeding. In the younger man I found a carcinoma at the upper end of the rectum. In the older man I found a tumor, an adenoma the size of a hen's egg, probably benign, at the lower end of the pelvic colon; unfortunately, I didn't get a chance to remove it or study it further, because he died of a stroke later. Both of these were easily diagnosed with the sigmoidoscope, whereas the x-rays would probably have missed them. There are a few things in making a sigmoidoscopic examination that are quite valuable. The length of the tube does not determine the field for examination, because if one studies the type of secretion that comes down from above the end of the instrument, one will get some valuable hints as to what may be going on higher up. A rectal tube or a catheter attached to a bulb or other suction apparatus can be put through the sigmoidoscope when it reaches its highest point, and with it one can often collect secretions that are valuable for examination. To overcome one difficulty in the passage of the sigmoidoscope, the physician can often, with the instrument in place, leave the patient in position while he answers the telephone or sees another patient, and when he comes back the spasm will have been relieved and the sigmoidoscope will usually pass on easily another two or three inches. Another thing that sometimes helps me to pass the instrument farther is the use of saturated solution of magnesium sulphate on a swab. I think that Dr. Beach of Pittsburgh told about that for the first time.

DR. ANTHONY BASSLER, New York: As I get the point of Dr. Yeomans' paper, he wants to present the value of the sigmoidoscopic examination. It is an interesting thing that for many years the proctologists have been pounding on that one idea, and yet there seems to be a gap in the universal use of the sigmoidoscopic for which there is really no excuse on the part of any one, however limited his practice may be. Physicians ought to make their examinations complete, and there is no doubt that the use of this instrument is valuable in clinical work. A criticism that I have of the proctologist is that the use of the instrument is always centered around pathologic changes of carcinoma, adenoma and hemorrhoids, and things of the sort that have somewhat of a surgical interest. I want to step down into their domain for a minute and say this: The use of the proctoscope from a gastro-enterologic standpoint has a most valuable application. Familiarity with the appearance of the mucosa can commonly suggest parasitic infections; appearance of ulcers commonly suggests types of biologic infections, and one has a means of seeing an ulcerated colitis by eye. Chronic infections of the intestine have commonly a certain characteristic appearing mucous membrane. There is the typical atrophic mucous membrane and the hypertrophic forms which are secondary to certain classic types of intestinal toxemias. I am not speaking on surgical matters of proctology but on clinical matters of gastro-enterology, and I would substantiate the proctologist's effort and try to popularize the use of this instrument as a clinician and not as a proctologist or surgeon. Nobody should miss the valuable clinical opportunities that come in the use of this endoscopic instrument in even straight medical gastro-enterology.

DR. FRANK C. YEOMANS, New York: This paper is not on the technic of sigmoidoscopy. The title was selected to draw attention to the subject rather than to cause a discussion of the relative merits of proctoscopic and roentgen examinations. The two are complementary and essential in many instances. Every physician understands the importance of the stool examination. Reports of routine examination are frequently received "negative for ova and parasites" or "occult blood," which mean nothing, and I found it necessary to get the material fresh from the mucosa, either on the eye of the rectal tube or by scraping, which is much better, in cases of dysentery. This is not a paper for the specialist. Its purpose is to focus attention on a glaring defect in general practice. The great majority of general prac-

titioners do not own x-ray machines or proctoscopes and they are not familiar with their use. Too often and quite as a routine the physician sends his patient to the roentgenologist without his having a proctoscopic or digital examination. I have many consultations in hospitals and frequently am told that a proctoscopy has been done, usually by the junior intern, who notes that he thinks the mucous membrane is inflamed or swollen in some spot. The bowel may not have been properly emptied. One cannot blame the intern for not knowing what a normal bowel looks like. He never saw one in medical school and has forgotten most of the living pathologic condition of the That is the point I am emphasizing. It is a practical point for bowel. That happens in the metropolis and I am sure it happens, only to a greater degree, in the rural parts of the United States. the welfare of the patient and for the credit of the profession.

TREATMENT OF INTERMITTENT CLAUDICATION WITH HYPERPYREXIA PRODUCED BY BATHS *

H. G. MEHRTENS, M.D.
AND
P. S. POUPPIRT, M.D.
SAN FRANCISCO

In the routine treatment of 500 neuropsychiatric patients with hyperpyrexia produced by baths, it became apparent that certain types of pain were especially amenable to such therapy. In this favorable group were cases with vascular lesions and vasoneuroses. The symptoms complained of ranged from the more trivial discomforts on vigorous exercise to crippling incapacity on any exertion. In the early and less typical cases a definite classification was doubtful. In severe cases the diagnosis was obvious, but all cases could be included under the symptom complex of intermittent claudication.

Intermittent claudication is a term now rarely considered as descriptive of a clinical entity. It should be restricted to a combination of symptoms observable in

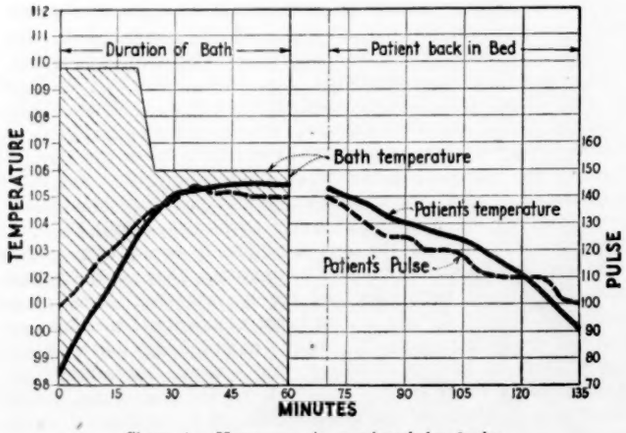

Chart 1.—Hyperpyrexia produced by baths.

a number of pathologic conditions. While such a symptom complex may result from many forms of arterial lesions, two varieties, arteriosclerosis and endarteritis obliterans, will include far the larger proportion of cases. Hunt [1] has emphasized that the two chief factors, angiosclerosis and angioneurosis, are usually combined. The distribution of the lesions allows of a most varied clinical picture, including spinal, cerebral, mesenteric, retinal and lumbar types.

In the past many methods have been employed in the treatment of intermittent claudication, including immersion of the extremities in hot water, use of diathermy locally, protein shock,[2] intravenous injections of hypertonic sodium chloride,[3] and two surgical methods—that of stripping the peripheral vessels [4] and that of removing the sympathetic ganglions.[5] Intravenous sodium chloride solution has been reported as symptomatically helpful. Protein shock is temporarily of benefit and indicates the results that may be anticipated from surgery. The surgical methods, particularly ganglionectomy, apparently give the most satisfactory results when applied in carefully selected cases.

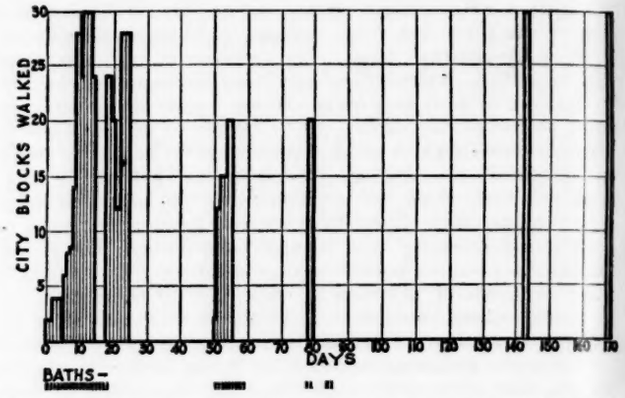

Chart 2.—Effect of baths on ability to walk, in a case of arteriosclerosis.

TECHNIC OF THE BATH

An ordinary bathtub and bath thermometer may be used, although the continuous tub admits of a more satisfactory control of fever. An ordinary mouth thermometer will suffice at lower temperatures, but a rectal thermocouple is very helpful at high temperatures or for noncooperative patients. For this type of patient a mouth temperature of from 103 to 105 F. is sufficient.

Our technic consisted in immersing the patient in a bath at 110 F. With timid patients, or on the occasion of the first bath, the temperature can be started at 105 F. Ordinarily 110 F. was maintained until the temperature of the patient reached a point within 1½ degrees of the fever desired. Then the temperature of the water was reduced until it corresponded with the mouth temperature of the patient. The routine bath lasts one hour, but when indicated it is feasible to maintain the patient's temperature by wrapping him in blankets. A daily bath repeated fourteen times is indicated for most patients, although twice this number were given consecutively with no added difficulty (chart 1).

CLINICAL RESULTS

In the great majority of the less severe cases, symptoms were ameliorated by a series of fourteen baths. In more than 30 per cent no recurrence took place during the period of observation. In the severe cases the results were varied. When gangrene had set in, no improvement was obtained even when the fever was produced without wetting the gangrenous tissues. In six cases in which gangrene had not appeared but symptoms were severe, every patient received sympto-

* Read before the Section on Nervous and Mental Diseases at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Hunt, J. R.: Intermittent Claudication and Allied Syndromes Due to Angiosclerosis of the Extremities, M. Rec. **67**: 801 (May 22) 1905.

2. Allen, Smithwick: Use of Foreign Protein in the Treatment of Peripheral Vascular Disease, J. A. M. A. **91**: 1161 (Oct. 20) 1928.

3. Silbert, Samuel: Thrombo-Angiitis Obliterans, J. A. M. A. **94**: 1730 (May 31) 1930.

4. Lewis, Dean; Reichert, F. L.: Collateral Circulation in Thrombo-Angiitis Obliterans, J. A. M. A. **87**: 302-304 (July 31) 1926.

5. Brown, J. E., and Adson, A. W.: Thoracic and Lumbar Sympathetic Ganglionectomy in Peripheral Vascular Diseases: Therapeutic Value, J. A. M. A. **94**: 205 (Jan. 25) 1930.

matic relief lasting from one week to a year. Every patient gained weight during the course of baths, although the immediate loss of weight following a bath ranged from 3 to 5 pounds.

Following is the report of a case of arteriosclerosis:

A Jewish Hungarian carpenter, aged 54, entered the hospital complaining of pain in the calves of both legs produced by walking half a block which disappeared with rest. This condition had been present for eight months and was increasing in intensity in spite of numerous courses of diathermy. Examination showed a residual hemiplegia, sclerotic radial arteries, feet pale and cold with absent dorsalis pedis and posterior tibial pulsations of both sides. Roentgenograms showed calcification of arteries of the legs. The diagnosis was arteriosclerosis.

The patient was given a series of hyperpyrexia baths with resulting improvement beginning after the second bath and gradually increasing, as shown in chart 2, until, after eighteen daily baths, he was able to walk thirty city blocks without discomfort. Twenty-five days after dismissal he reentered because of a return of slight pain in the legs on walking two blocks. He was given six daily baths, following which he was able to walk twenty blocks. Twenty-five days later he returned for one prophylactic bath. At that time he could walk twenty blocks without pain. He has been under observation for a year, has had no relapses, no further treatment has been given, and

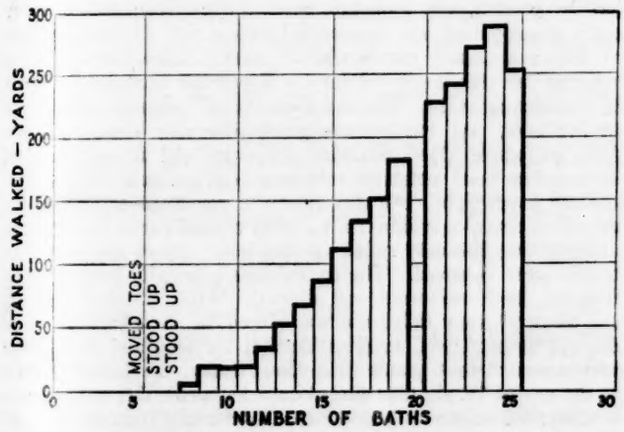

Chart 3.—Effect of baths on ability to walk, in a case of endarteritis obliterans.

he is now walking from 3 to 5 miles without pain. In spite of the good clinical results, no actual change could be demonstrated in the vessels.

Chart 3 represents the progress made by a patient with endarteritis obliterans who showed symptoms of intermittent claudication. The improvement in this case did not begin until the seventh day and was of no consequence until the eleventh day, following which a steady gain was made until the patient could walk 250 yards without pain.

It is interesting to speculate as to how the hyperpyrexia does its work. George Brown [6] concludes that the collateral circulation in thrombo-angiitis obliterans is in a spastic state from which it is released by foreign protein reaction. The fever resulting from the baths may act in a similar manner. There remains the possibility that hyperpyrexia acts centrally on the vasodilator center, accounting for a more prolonged increase in circulation than an hour's fever with its resultant peripheral dilatation would explain.

COMPLICATIONS OF HYPERPYREXIAL BATH THERAPY

In a series of 5,000 treatments of patients varying in age from 16 to 87, including ones with myocarditis, hypertension and severe degrees of marasmus, no fatalities occurred. Complications were avoided by individualizing the treatment and by constant supervision of the patients.

6. Brown, G. E., and Adson, A. W.: Physiologic Effects of Thoracic and Lumbar Sympathetic Ganglionectomy or Section of the Trunk, Arch. Neurol. & Psychiat. **22**: 322 (Aug.) 1929.

INDICATIONS

Hyperpyrexia baths, because of their safety and simplicity of administration, have a field of usefulness in early cases of vascular disease with symptoms of intermittent claudication. Even in the more severe cases this therapy may find a place because sympathetic ganglionectomy, as well as the use of intravenous hypertonic saline solution, is recommended chiefly in selected cases of Buerger's disease. Arteriosclerosis with calcification is infrequently benefited by the foregoing procedures, but hyperpyrexia has in our experience proved worthy of trial.

CONCLUSIONS

1. Hyperpyrexia produced by baths is a useful therapeutic measure in the symptom complex of intermittent claudication.

2. The milder cases offer the better chances of improvement.

3. Cases in which gangrene has already taken place show no amelioration.

4. Arteriosclerosis with calcification in the peripheral vessels presents a favorable field for this therapy.

Stanford University Hospital—2361 Clay Street.

Clinical Notes, Suggestions and New Instruments

SHALL SYRINGOMYELIA BE ADDED TO THE LESIONS APPROPRIATE FOR SURGICAL INTERVENTION?

CHARLES H. FRAZIER, M.D., Sc.D., PHILADELPHIA

By a recent experience my attention has been called to benefits that may be derived in syringomyelia from surgical intervention. Looking over the literature I was surprised to find no references of American authorship to resort to operation for this condition. As a matter of fact, the first recorded operation for syringomyelia is contained in an article by Puussepp,[1] who related his operative experience in two cases. Only four other pertinent articles have appeared since Puussepp's original contribution; one by the same author,[2] one by Förster,[3] one by Schmieden,[4] and one by Oppel.[5] I shall not review these articles in detail. Suffice it to say that Puussepp has operated on four patients with manifest improvement; Schmieden on one patient with definite improvement in movement of arm and leg and of sensation; Oppel performed seven operations on six patients with results varying from negative to brilliant. Up to the present time, therefore, including my own there are only twelve cases on record of the surgical treatment of syringomyelia.

REPORT OF CASE

History.—R. S., a woman, aged 35, referred to the Neurosurgical Service of the University Hospital by Dr. Walter Timme, noticed a sense of tingling in the entire left upper extremity, fifteen years before, immediately after sneezing, which continued for a month, and following this there developed weakness in the left forearm and left ankle. Associated with this was pain in the left ankle and left thigh. The weakness in the left upper and lower extremities gradually increased and eleven years ago (1919) weakness in the right arm was noticed. Ten years ago (1920) there was a gradual weakness and loss of motion in the right upper extremity and four months later

1. Puussepp, L.: Rev. neurol. **33**: 1171 (June) 1926.
2. Puussepp, L.: Arch. franco-belges de chir. **30**: 293 (April) 1927.
3. Foerster, O.: Zentralbl. f. Chir. **56**: 891 (April 6) 1929.
4. Schmieden, V.: Zentralbl. f. Chir. **56**: 2114 (Aug. 24) 1929.
5. Oppel, W. A.: Arch. f. klin. Chir. **155**: 416, 1929.

sensation in the right upper and lower extremity was almost completely lost. During the past years she developed clonic spasm of the right shoulder and muscles of the throat and quite recently incontinence.

Examination.—There was no voluntary movement of the left upper extremity. In the left lower extremity voluntary motion was greatly impaired and sufficient only to make a few steps possible with help. There was restricted movement of the right elbow joint, and the fingers of the right hand were rigidly flexed. The movements of the right lower extremity were only slightly impaired. The sensory changes were profound. Sensation of all forms was lost in the back of the head, trunk, both upper extremities and the right lower extremity. In the left lower extremity sensation for touch, pain and temperature was partially preserved. In the face, tactile sensation was acute on both sides but there was impairment of temperature and pain sensation—a condition typical of syringomyelia.

There was bilateral atrophy and fibrillary tremor of the tongue.

There was a coarse nystagmus on looking to the right, rotary on looking to the left, lateral on looking upward and downward.

The patellar and Achilles tendon reflexes were increased on the right and diminished on the left. There was abortive ankle clonus and Babinski reflex.

By the manometric test there was no evidence of a spinal block.

April 14, 1930, laminectomy was performed under colonic ether anesthesia. The laminae and spinous processes of the seventh cervical and first thoracic ribs were removed. The spinal canal at this level seemed abnormally wide. When the dura was incised, an abundance of cerebrospinal fluid could be seen in the subarachnoid space.

The cord was pulsating and was affected by respiration. As I was observing the cord and before the incision was made the cord collapsed. How the fluid escaped I could not determine.

In deciding on a point at which to make the incision in the cord, I selected an avascular space just to the right of the median line. The wall of the cyst at this level was but from 2 to 4 mm. thick. After the incision was made, a thin strip of the finest gutta percha tissue was inserted into the cyst to insure permanent drainage.

After securing hemostasis the dural incision was closed with a continuous silk suture and the muscles with interrupted silk sutures.

The immediate convalescence was unusually free from discomforts. The wound healed by first intention and the patient was discharged, April 28, two weeks after the operation.

As to the immediate effects, the incontinence was immediately relieved. The spasticity of the fingers of the left hand had subsided so that passive movement was possible, a condition not possible before the operation. The patient could extend the fingers of the right hand. This she could not do before. The head was held erect and not tilted to one side. Especially did the patient feel a sense of relaxation, and the sense of tension had in large measure subsided.

Sensation for touch and temperature was restored in the zone supplied by the second and third cervical nerves and in the trigeminal distribution; sensation for pain and temperature was completely restored on the right side of the forehead and only slightly impaired elsewhere.

The improvement that followed was definite; that it was not more striking must be attributed to the duration and extent of the lesion. The cessation of incontinence more than justified the undertaking. Not only had the patient's condition improved in these various particulars but the improvement in her morale, of itself, was sufficient, it seemed to me, to justify the operation.

On the results obtained in the series of cases reported, no one should question the propriety of surgical intervention. As a matter of fact, the underlying principle—the relief of pressure—is the same as that on which many operations on the brain and spinal cord are based. In my case, for instance, the development of urinary incontinence was a manifestation of pressure. Perhaps it is too early to predict the end-results. Oppel thinks it is at least reasonable to assume that the incisional openings into the cyst will not close, but to insure permanent drainage I inserted a narrow strip of thin gutta percha tissue into the cavity and I learned later that Oppel had used a strip of dura for the same purpose. Space does not permit a discussion of the technic in detail. Suffice it to say that in most instances the lower segments of the cervical cord should be exposed and an incision made of sufficient length to establish drainage and prevent reaccumulation of fluid in the cavity. The only question in dispute is the site of the incision. Poussepp advises an incision from 2 to 4 mm. long to one or the other side of the median line, the right or the left side being chosen according to whether the symptoms are more advanced on one side or on the other.

Altogether, this initial experience with the surgery of syringomyelia was more than pleasing and from my own experience and that of others I should not hesitate in advising intervention, and at as early a stage of the disease as possible.

133 South Thirty-Sixth Street.

PELLAGRA-LIKE SKIN LESIONS APPEARING IN THE COURSE OF A KETOGENIC DIET*

RILEY H. GUTHRIE, M.D., PALMER, MASS.

The case here reported illustrates a relatively new complication—a dietary deficiency syndrome—due to poorly supervised ketogenic diet.

B. R., a woman, aged 20, single, the only child of living and healthy parents, was reared in comfortable circumstances. Her early development was uneventful except for whooping cough at 1½ years, and measles at 8 years. There was nothing relevant in the family history. Nocturnal convulsions were first observed at 14. Various methods of treatment were tried in her case. At 16 she was given glandular therapy in the form of whole gland pituitary substance and thyroid extract because her basal metabolic rate was —24 per cent and she was slightly overweight. At that time she presented some vaguely described neurologic signs; i. e., some cranial nerve involvement and positive Babinski reflex on the left. About this time her tonsils were removed. The convulsions gradually became more frequent, both nocturnal and diurnal. After physical therapy and electrotherapy failed she was placed on phenobarbital. She did not respond well to phenobarbital therapy, and the dosage was increased to 4 grains (0.26 Gm.) a day. In January, 1930, at the age of 19, she was placed on a ketogenic diet with a very low protein, relatively liberal carbohydrate and high fat content. This diet was carried out in her home without proper medical supervision. For a time convulsions decreased in number but finally returned with such frequency that phenobarbital was again increased to 4½ grains (2.9 Gm.) daily. She had been refractory to all forms of treatment. After seven months of this ketogenic diet she developed an erythema on the dorsal surfaces of her hands and wrists, and about her neck. One observation was made in the outpatient clinic of the Monson State Hospital, Aug. 21, 1930. Her mother stated that the ketogenic diet had been discontinued three weeks previously because the patient was growing worse and mental deterioration was progressing. The erythema referred to previously had become less marked after her dietary restrictions had been removed.

A dusky desquamation of glovelike distribution was present over the dorsum of her hands and wrists. A similarly pigmented desquamation was about her neck, of collar-like distribution. There was a tawny pigmentation over the dorsal aspects of both feet and external malleoli. The following neurologic summary was made by Dr. Paul I. Yakovlev: The patient was fairly well nourished. She was inactive, sluggish and indifferent. Her comprehension was impaired and she answered questions slowly, carelessly and in monosyllables. Her speech was slurring, her body attitude atonic and her movements hesitating. Her station was unsteady. Her arms hung flaccidly, and her gait was slouchy. There was nystagmus on lateral gaze. Diadokokinesis was clumsy and slow, and there was marked hypermetria in heel-to-knee tests on both sides. The patellar reflexes were equal and pendulous (atonic). The tonic postural reflexes were weak or abolished. The plantar reflexes were normal. The abdominal reflexes could not be elicited. Ophthalmoscopic examination was negative.

* From the Monson State Hospital.

COMMENT

The neurologic signs—generalized muscular atony, clumsy diadokokinesis, absent abdominal reflexes, nystagmus and positive Romberg—might be accounted for by the prolonged use of large doses of phenobarbital. The prolonged sedation and resultant vegetative existence of this patient might easily influence her nutritional status and, therefore, play a part in the causation of her pellagra-like skin symptoms. However, the history of a very low protein diet led up to the appearance of this well known protein deficiency syndrome, and the skin symptoms began to subside as soon as dietary restrictions were removed.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1930, p. 352).

Medical Arts Laboratory, Inc., Oklahoma City, Okla.

Antirabic Vaccine, Semple Method.—An antirabic vaccine prepared according to the general method of David Semple (phenol killed). It consists of a sterile suspension, in distilled water, of the brain and cord substance of rabbits moribund from the injection of fixed virus rabies. The virus is killed by the use of phenol and by incubation at 37 C. for forty-eight hours. The finished product contains 0.5 per cent of phenol. Marketed in packages of fourteen vials, each containing 2 cc.; in packages of fourteen vials each containing 2 cc. and a syringe; in packages of fourteen syringes, each containing 2 cc. All of the doses are of the same potency; one dose is to be given daily over a period of fourteen days. In severe cases, two doses are given daily for several days.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

E. R. Squibb & Sons, New York.

Diphtheria Toxoid-Squibb (see New and Nonofficial Remedies, 1930, p. 366).—Also marketed in packages of twenty 1 cc. ampules of diphtheria toxoid and two 1 cc. ampules of diluted diphtheria toxoid for the reaction test.

NORMAL HORSE SERUM (See New and Nonofficial Remedies, 1930, p. 340).

E. R. Squibb & Sons, New York.

Normal Horse Serum (see New and Nonofficial Remedies, 1930, p. 341).—Also marketed in packages of one 50 cc. vial.

SODIUM GOLD THIOSULPHATE.—Sodii et Aurii Thiosulphas.—Gold Sodium Thiosulphate.—Sodium Aurothiosulphate, $Na_3Au(S_2O_3)_2.2H_2O$. The complex salt formed from 1 molecule of gold thiosulphate and 3 molecules of sodium thiosulphate. It contains approximately 37.4 per cent of gold.

Actions and Uses.—A review of the literature in regard to the use of gold and sodium thiosulphate in the treatment of lupus erythematosus reveals in general quite satisfactory clinical results, and it is considered a distinct advance in the therapy of this condition. Although there have been many recurrences in cases originally thought cured, nevertheless the beneficial and often curative action of the drug in a good percentage of the cases seems to warrant giving it a definite place in the treatment of a disease for which at present there is no specific remedy.

Gold and sodium thiosulphate must, however, be used with extreme caution. Dosages at first advocated have been found to be too great, resulting frequently in severe reactions, sometimes resulting fatally. Even with much smaller doses, accidents of this kind have occurred. The reactions most commonly encountered are varying degrees of fever, diarrhea, vomiting, albuminuria, enteritis, stomatitis, prostration and shock. Skin reactions consist of varying degrees of erythema, urticaria, severe papular and vesicular dermatitis, and scarlatiniform and exfoliative dermatitis. Published necropsy reports reveal conditions usually found in metal poisoning.

Dosage.—At present the initial dose preferred is from 0.01 to 0.025 Gm. (⅙ to ⅜ grain) intravenously given in from 2 to 5 cc. of sterile distilled water. Subsequent doses given at weekly intervals are increased 0.01 Gm. (⅛ grain) per dose, not exceeding a maximum of 0.075 Gm. (1⅙ grains) for women and 0.1 Gm. (1½ grains) for men, provided no reactions have occurred. The drug may be continued cautiously in smaller dosage following complete recovery from mild reactions but should be discontinued permanently if severe reactions have occurred. A careful physical examination to rule out disease of the liver and kidneys, or other serious organic disorders, should be made before using this therapy. Cases of lupus erythematosus of the disseminated type are most likely to show an extreme idiosyncrasy for the drug, and if used at all in such cases it must be given in very small doses not exceeding 0.005 Gm. at the start and cautiously increased to a maximum of probably not over 0.025 Gm.

Sodium gold thiosulphate occurs in white, glistening, needle-like or prismatic crystals. The aqueous solution is colorless. It is freely soluble in water; very slightly soluble in alcohol, ether and chloroform. An aqueous solution (1: 200) is neutral or faintly alkaline to litmus.

Sodium gold thiosulphate decomposes without melting when heated gently, leaving a brown residue on ignition. An aqueous solution (1: 200) assumes a yellow color on standing and decomposes.

Dissolve 0.1 Gm. of sodium gold thiosulphate in 20 cc. of water: separate portions of 2 cc. each yield a brick red precipitate with 0.4 cc. of silver nitrate solution; a purple red color followed by a gray brown precipitate on addition of 0.2 cc. of ammonia water and 0.5 cc. of solution of hydrogen peroxide, followed by heating to boiling point (*distinction from arsenic, antimony and tin*); no precipitate with 0.3 cc. of sodium iodide (15 per cent); a bluish purple (purplish gold) precipitate preceded by disappearance of the iodine color with 0.3 cc. of iodine test solution (*presence of* $S_2O_3^{--}$); no precipitate in the cold, on addition of 0.5 cc. of concentrated hydrochloric acid, but on heating to boiling a precipitate then forms; a precipitate with 0.5 cc. nitric acid; no precipitate on addition of 0.2 cc. barium chloride solution and 0.2 cc. diluted hydrochloric acid (*sulphate*): no apparent change in cold or after heating with 0.4 cc. of sodium bisulphite solution (*no auric compounds*).

Dissolve about 0.5 Gm. of sodium gold thiosulphate, accurately weighed, in 5 cc. water, carefully add 4-5 cc. nitric acid and 25 cc. water; agitate; when the reaction has subsided, filter the residue on to a tared Gooch crucible. Wash the residue with six 25 cc. portions of water and save the filtrate for determination of sulphur constituent. Wash the residue in crucible with alcohol and ether after removal of the filtrate; dry the contents at 100 C. and ignite to constant weight. The weight of gold should not be less than 37.0 per cent nor more than 37.5 per cent.

Transfer the filtrate from the gold precipitation to a 250 cc. volumetric flask and make up to volume by addition of water. Pipet 50 cc. of the solution to a 500 cc. beaker, add 5 cc. hydrochloric acid, evaporate to one-third volume, dilute to 250 cc., heat almost to boiling temperature, slowly add with stirring 10 cc. of hot barium chloride solution, digest, filter through tared Gooch crucible, dry and ignite the residue to constant weight. The weight of barium sulphate corresponds to not less than 24.2 per cent nor more than 24.7 per cent of sulphur.

Gold Sodium Thiosulphate-Abbott.—A brand of sodium gold thiosulphate-N. N. R.

Manufactured by the Abbott Laboratories, North Chicago, Ill. No U. S. patent or trademark.

Ampules Gold Sodium Thiosulphate-Abbott, 0.05 Gm.
Ampules Gold Sodium Thiosulphate-Abbott, 0.1 Gm.
Ampules Gold Sodium Thiosulphate-Abbott, 0.25 Gm.
Ampules Gold Sodium Thiosulphate-Abbott, 0.5 Gm.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1930, p. 356).

The National Drug Co., Philadelphia.

Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic) (See New and Nonofficial Remedies, 1930, p. 357).—Also marketed in packages of one hundred and fifty 1 cc. vials, fifty immunizations.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364.

The National Drug Co., Philadelphia.

Diphtheria Toxoid (See New and Nonofficial Remedies, 1930, p. 365).—Also marketed in packages of five immunization treatments, consisting of fifteen vials, each containing one human dose; in packages of fifty immunization treatments, consisting of 150 vials, each containing one human dose. For the two dose method of treatment the following forms are marketed: in packages of one immunization treatment, consisting of two vials, each containing one human dose; in packages of five immunization treatments, consisting of ten vials, each containing one human dose; in packages of ten immunization treatments, consisting of one vial containing twenty human doses; in packages of fifteen immunization treatments, consisting of one vial containing thirty human doses; in packages of fifteen immunization treatments, consisting of thirty vials, each containing one human dose; in packages of fifty immunization treatments, consisting of one hundred vials, each containing one human dose.

POLLEN ALLERGEN SOLUTIONS-SQUIBB (See New and Nonofficial Remedies, 1930, p. 27).

The following pollen allergen solutions-Squibb are marketed in treatment set packages of three 3 cc. vials, the first containing 0.0005 mg. of nitrogen per cubic centimeter, the second containing 0.008 mg. of nitrogen per cubic centimeter, and the third containing 0.05 mg. of nitrogen per cubic centimeter.

Ragweed Combined Pollen Allergen Solution-Squibb; Timothy Pollen Allergen Solution-Squibb.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 20, 1930

DUES FOR 1931

Among the pages of THE JOURNAL this week will be found a colored slip of irregular shape. This slip serves a double purpose. It is a reminder or statement for 1931 Fellowship and subscription dues which are now payable. When properly folded the slip is also a perfect envelop which needs no addressing or postage. The check, draft or money order may simply be enclosed in this envelop, dropped in the mail, and the matter of 1931 dues is disposed of in about one minute's time. It is earnestly urged that every Fellow and subscriber act promptly on this reminder. The colored slip also lists the various special journals published by the Association, as well as *Hygeia*. This is an added convenience, as all subscriptions may thus be covered with one remittance. Full directions for folding the envelop appear on advertising page 12.

SERUM PROTEIN AND EDEMA

There can no longer be any doubt of the close interrelationship between the occurrence of an abnormally low content of protein in the blood serum and the possible development of edema. The latter phenomenon may become manifest under a variety of pathologic conditions, notably when certain types of cardiovascular disorders arise and they are attended with renal disorder. The studies of recent years have demonstrated, however, that generalized edema may occur in the absence of detectable primary disease in the cardiovascular and renal systems. An illustration is afforded by the so-called malnutritional edema. This was prevalent during and just after the World War in central Europe, where people were forced to subsist largely on turnips and other root vegetables for long periods. Schittenhelm and Schlecht [1] studied the condition in prison camps and decided that rest and increased protein and fat in the diet relieved the edema. They estimated serum proteins by refractometer methods and found that refractometric indexes were low in 50 per cent of the cases. Finally, the disease was attributed to a lack of protein and possibly of fat in the diet. The symptoms were not those of a lack of vitamins.

Edematous conditions have been produced experimentally in animals by prolonged feeding of diets poor in protein.[2] Leiter [3] lowered the serum proteins by plasmapheresis. He bled animals, centrifugated off the plasma, mixed the cells with physiologic solution of sodium chloride, and replaced them in the animals. By this means the serum proteins were lowered and an edema developed. Others have succeeded similarly.

The relationship between serum proteins and the occurrence of edema in man has lately been stressed with especial reference to the therapeutic management of the condition by increments of protein in the dietary intake. In a series of patients at the Yale School of Medicine, Peters and his co-workers,[4] for example, observed that edema usually is present when the serum proteins are below 4 per cent, and never when they exceed 5 per cent. This condition obtains in so-called nephrosis. A case carefully investigated by Cowie and his collaborators [5] at the University of Michigan substantiates anew that there is a definite relationship between the serum protein and edema in childhood. Edema and ascites could be induced at will by feeding an amount of protein inadequate for the patient's nutritional needs, and likewise edema and ascites could be caused to disappear by feeding an adequate amount of protein. The amount of protein necessary to overcome and prevent edema was the amount that would bring the patient into a positive nitrogen balance of from 1 to 3.7 Gm. and the blood proteins up to 5 Gm. per hundred cubic centimeters. A continuous nitrogen balance of from + 2 to + 5 Gm. was incompatible with edema. The feeding of protein in this amount was unattended by an increase in the nitrogen content of the circulating blood or the retained fluids of the body. The retained nitrogen must therefore have been stored in some of the tissues. To secure the positive balances, an intake of 2.6 Gm. of protein per kilogram of body weight (1.2 Gm. per pound) was requisite. This is considerably more than Parsons [6] has recently found requisite for maintenance of a positive nitrogen balance in healthy children of the preschool group; i. e., from 4 to 8 years of age. Thus the protein factor in nutrition must be reckoned with in a way quite unlike that formerly considered universally desirable when albuminuria occurs.

1. Schittenhelm, A., and Schlecht, H.: Berl. klin. Wchnschr. **58**: 1138, 1918.

2. The literature of the subject has been reviewed by Frisch, R. A.; Mendel, L. B., and Peters, J. P.: The Production of Edema and Serum Protein Deficiency in White Rats by Low Protein Diets, J. Biol. Chem. **84**: 167 (Oct.) 1929.

3. Leiter, L.: Experimental Edema, Proc. Soc. Exper. Biol. & Med. **26**: 173 (Nov.) 1928.

4. Peters, J. P.; Wakeman, A. M.; Eisenman, A. J., and Lee, C.: Pathogenesis of Nephritic Edema, Yale J. Biol. & Med. **1**: 35 (Oct.) 1928.

5. Cowie, D. M.; Jarvis, Katharine M., and Cooperstock, Moses: Metabolism Studies in Nephrosis, Am. J. Dis. Child. **40**: 465 (Sept.) 1930.

6. Parsons, J. P.: Nitrogen Metabolism of Children with Special Reference to the Protein Requirement of Children of Preschool Age, Am. J. Dis. Child. **39**: 1221 (June) 1930. Protein Requirement of Preschool Child, Current Comment, J. A. M. A. **95**: 1351 (Nov. 1) 1930.

DIET AND DENTAL CARIES

The conviction that defective teeth frequently act as foci of infection has served to stimulate further increasing interest in the care of the teeth, and attention is being centered with renewed vigor on the etiology of caries. The disease has long been known; paleopathologic studies of ancient Egyptian skulls bear evidence to its prevalence among the earliest races.[1] Dental caries is far more common among the more highly civilized races than among peoples living under less favorable or, at least, simpler conditions. However, there is no evidence for believing that caries is an endemic disease or that it is contagious. That general health has a bearing on the appearance of caries is shown by the fact that this disorder frequently is observed after periods of sickness and especially during pregnancy. In view of the many attempts to account for development of dental caries on the basis of either experimental or clinical conditions, the present state of our knowledge of the etiology of this disease is not gratifying.

The anatomic situation of the teeth renders an adequate study of dental pathology extremely difficult. Composed in large part of inorganic material, protected with hard enamel, the teeth are apparently chemically inert. Yet it is asserted that caries consists essentially of localized areas of solution of the mineral salts of the tooth. Furthemore, the fact that the teeth are in a moist, nonsterile chamber, subjected to wide ranges of temperature, to atmospheric gases and to contact with various food materials, renders experimental control in vivo a remote possibility. Little wonder, therefore, that caries has been variously attributed to such widely different agents as bacterial activity, the reaction and altered composition of the saliva, the influence of the secretions of the endocrine glands, and to faulty diet.

It is generally accepted that age is a factor in the susceptibility to dental caries, the incidence being highest between the ages of 7 and 20. For this reason it would appear to be particularly important to secure data on the factors influencing the appearance of this disorder in the young, with a view to developing effective prophylactic measures. This is the thesis on which are based recent extensive studies of Bunting, Hadley, Jay and Hard.[2] In a preliminary survey it had been observed that the prevalence of caries was much less among children given diets that would be generally regarded as adequate. In the main investigation the relative influence of antiseptic mouth washes, diet and a combination of these was studied. Five groups of children consisting of from 74 to 159 individuals were examined both before and after approximately a year had elapsed during which time the experimental measures were in effect. Four of the groups lived in state-supported institutions and so might be expected to have been under more or less satisfactory control.

The first two groups were provided with a satisfactory diet from which sugar was eliminated, except as it was used to make the food palatable. In this diet milk, green vegetables and fruit were prominent. In addition to this favorable diet, an antiseptic mouth wash was used daily. At the end of the period of observation, caries was active in 5 per cent and 6 per cent respectively of the children, while 80 per cent and 79 per cent respectively were free from the disorder. In the third group, attending a public school, mouth antisepsis was practiced, but control of the diet was not attempted. After nine months, 50 per cent showed active caries and only 25 per cent were free. The fourth group consisted of children in a state public school and was provided with an "unusually good" though not ideal diet. Here the mouth wash was omitted, and after a year, 75 per cent were normal while only 6 per cent showed active caries. In the fifth group, in which the ration was not carefully balanced, neither dietary change nor preventive treatment was carried out. Eighteen per cent of these children were free from lesions, while 49 per cent showed active caries.

In spite of the fact that studies of large groups of human beings inevitably suffer the drawbacks of noncooperation and lack of suitable controls, the investigation of Bunting and his co-workers is impressive. In the three groups in which milk, fruits and green vegetables were prominent in an otherwise well balanced diet, the progress of caries was either greatly diminished or prevented entirely, and this result was obtained whether antiseptic mouth washes were used or not. It was also pointed out that these children were in excellent general health at the termination of the investigation. In those groups consuming diets not entirely satisfactory according to modern nutritional standards, the disorder was active and its rapid course was not arrested. Among these children, likewise, the use of oral antisepsis exerted little influence.

While the observations here discussed have demonstrated little that is new concerning the immediate cause of dental caries, they do emphasize again the importance of diet in the control or prevention of the disease. At first glance the beneficial effect of the better rations might be attributed to a metabolic change, in which case one is confronted with the difficulty of explaining a situation in which an apparently inert and inactive structure such as the enamel is so altered chemically that it is rendered in a comparatively short time either more resistant or more susceptible to the effects of substances in the mouth. The other point of view emphasizes the mechanical action of foods such as greens and raw fruits which have been demonstrated to be of value in the prophylaxis and prevention of caries. Regardless of the point of view from which the beneficial effect of adequate diet is considered, it is

1. Marshall, J. A.: Etiology of Dental Caries, Physiol. Rev. 4: 564 (Oct.) 1924.
2. Bunting, R. W.; Hadley, Faith P.; Jay, Philip; and Hard, Dorothy G.: The Problem of Dental Caries, Am. J. Dis. Child. 40: 536 (Sept.) 1930.

satisfactory to know that this prevalent disease of childhood and youth can be largely controlled by a procedure at once physiologic and highly beneficial for many other reasons.

THE EFFECTS OF CONTINUED ADMINISTRATION OF IODIDE

Recently several experimental studies, carried out in different parts of the world, have indicated possible general benefits or detriments from administering iodide during long periods. The advent of iodide medication of whole populations, as with iodized table salt, iodized drinking water and iodized confections, has given special interest to these observations. So far as detrimental effects are concerned, there appears to be no doubt from these experimental studies that harmful effects in healthy animals receiving continued small doses have not been demonstrated. However, as to possible benefits, opinions and conclusions are not unanimous.

Favorable results indicating moderate though variable increases in body weight and growth of a great majority of white rats receiving iodized food continually during the major part of their lives have been mentioned previously in these columns.[1] The feeding of other salts to companion rats under the same conditions failed to exert similar benefits. These results with iodide agreed and correlated with a number of other beneficial effects on other functions in different animals observed in different parts of the world. For instance, growth of body weight of pigs, of sucklings of iodized mothers, and of rats on iodized milk was increased, the milk secretion of cows on iodized feed was improved in quality and quantity, iodized rats grew more rapidly, with more rapid sexual development, and iodized yeast showed more growth.

Now, however, two reports have appeared in this country which appear to deny the beneficial effects of iodide on growth and body weight. From the results of a limited study, Mendel and Vickery,[2] who used four groups of white rats, of which two groups were fed the usual complete artificial diet containing a trace of iodide and two groups were given 1.107 mg. of potassium iodide on yeast tablets daily with the same diet, venture the following opinion: "The variations between the records of individual animals are not inconsiderable, but the graphs that represent the averaged rates of gain for the respective groups are, we think, too nearly alike to permit claims of superiority for either type of diet." However, the curves published by the Connecticut investigators show that during several months there were greater increases in body weight of the rats receiving more iodide than among the controls on traces of the drug. These increases in body weight occur in about the same way and appear to be of about the same order of magnitude, namely, 8 or 10 per cent, as those reported by previous investigators. Assuming a benefit of this kind and degree to be correct and to hold good for man, it requires no stretch of the imagination to see that medication with iodide, practiced in various ways by physicians and the public the world over, with potentialities for good, may have an objective basis. Additional and more conclusive data are nevertheless desirable.

In another type of experiment, which ostensibly was designed to give the alleged beneficial effects of iodide an infallible test, Mitchell and his collaborators[3] of the Illinois Agricultural Experiment Station report negative results and deny the validity of most previous data. These investigators fed iodide to growing pigs, pouring the iodide on the morning feed in quantities equivalent to 1 grain (0.065 Gm.) of iodine daily; and to growing chickens, which received from 0.5 to 1 mg. daily per hundred grams of body weight. The Illinois investigators object to the group type of experiment, such as a group of three or five animals, frequently employed by previous workers. In their own experiments they used smaller groups, two pigs or three chickens, and practiced a peculiar selection of animals, so that each animal of a pair or triplet, one of which was the unmedicated control, was required to ingest the same amount of food daily. If an animal of a group did not eat the same amount, the food of the bigger eater was withheld. What this deliberate form of food restriction and equalization may mean for physiologic functions is not indicated, although it is assumed to be unobjectionable. In any case the conditions are not comparable with those of previous investigators who have employed the method of free choice in feeding, suitably controlled. Although the conclusions of the Illinois experimenters are unfavorable to the beneficial effects of iodide on growth and body weight in pigs and chickens, and on the assimilation of nitrogen, phosphorus and calcium in growing pigs, it seems that their conclusions can hold only for the special experimental conditions they imposed. The results might be, and in fact have been, different under other conditions. While it is possible that under other conditions the benefits of iodide might be due to effects on appetite, absorption, food consumption, or what not, this still leaves them within the scope of physiology.

Mathematical treatment of data alone does not necessarily make them physiologically accurate. Lest it be too readily assumed that all effects of iodide are mediated through the thyroid gland, a perusal of pharmacologic literature will indicate that iodide exerts many actions for which there is no reason to assume thyroid mediation, and yet the general metabolism may

1. Iodide and Health, editorial, J. A. M. A. **91**: 1720 (Dec. 1) 1928. Hanzlik, P. J.; Talbot, E. P., and Gibson, E. E.: Continued Administration of Iodide and Other Salts, Arch. Int. Med. **42**: 579 (Oct.) 1928.

2. Mendel, L. B., and Vickery, H. B.: Proc. Soc. Exper. Biol. & Med. **27**: 806 (May) 1930.

3. Carroll, Mitchell and Hunt: J. Agric. Res. **41**: 65, 1930. McLure and Mitchell: Ibid. **41**: 79, 1930. Hamilton and Kick: Ibid. **41**: 135, 1930.

be affected. Thus it would appear that the reaction of body weight and growth of animals to continued administration of iodide in small doses is different under different experimental conditions. Additional animal experimentation to settle the question of beneficial effects of iodide appears desirable, for here clinical experimentation offers only impressions.

Current Comment

ACUTE PERITONITIS

The peritoneum, it has been said, is one of the most common sites of inflammation, not because it is especially susceptible to infection but because it is so often subject to attack. Although uninfected agents, such as blood, bile and urine, may cause peritoneal inflammation, bacteria or their toxins are the predominant etiologic factors concerned. The opinions as to the final cause of death in acute diffuse peritonitis have not been uniform. As intestinal paralysis, with obstruction of the bowel, is a common symptom, it has been regarded as a determining factor in fatal cases. Part of the difficulty in establishing the truth has also been due to the lack of suitable experimental analogues. Attempts to produce experimental peritonitis by the intraperitoneal introduction of bacteria into laboratory animals have not been entirely satisfactory. A presumptive explanation of some of the failures has been offered by Steinberg and Goldblatt.[1] Following the intraperitoneal injection of *B. coli* suspended in physiologic solution of sodium chloride, a large number of these organisms were found in the lymph (thoracic duct) and a relatively smaller number in the blood. Rapid passage of bacteria from the peritoneal cavity into the blood was associated with the recovery of the animal; hence bacteremia is not responsible for the death of dogs in acute *B. coli* peritonitis. However, when large numbers of virulent colon bacilli suspended in tragacanth are injected intraperitoneally the animals always die, and the outcome is not altered by direct drainage of the thoracic duct. Steinberg and Goldblatt formulated the hypothesis that the intraperitoneal retention of bacteria suspended in tragacanth favors the production of toxic substances, the absorption of which causes the death of the animal. When bacteria suspended in saline solution are injected intraperitoneally, the production of toxin in an appreciable quantity is prevented by the rapid passage of the bacteria into the blood stream, where they are destroyed. Further implication of bacterial toxins as the primary factor in producing death has been supplied by Steinberg.[2] A fatal peritonitis can readily be produced by the introduction of diphtheria bacilli in suspensions of tragacanth in saline solution. It can be prevented by the administration of antitoxin. The local inflammatory reaction per se apparently has no effect on the survival or death of the animal. This constitutes added evidence that death in acute diffuse peritonitis may, under some conditions at least, be due to passage of a bacterial toxin from the peritoneal cavity. Effective antitoxic treatment thus becomes a real desideratum.

1. Steinberg, Bernhard; and Goldblatt, Harry: Studies on Peritonitis: I. Production of Experimental Peritonitis and Survival Following Intraperitoneal Injection of Bacillus Coli, Arch. Int. Med. **39**: 446 (March) 1927; II. Passage of Bacteria from the Peritoneal Cavity into Lymph and Blood, ibid., p. 449.
2. Steinberg, Bernhard: The Cause of Death in Experimental Acute Diffuse Peritonitis, Proc. Soc. Exper. Biol. & Med. **28**: 59 (Oct.) 1930.

SUGAR CONSUMPTION AND DIABETES

In discussions of the etiology of diabetes, it is usually admitted that the ultimate cause of the disease is not known. Obesity is at present regarded as the most important predisposing influence; and chronic dietary excesses usually precede obesity. Writers have from time to time identified dietary errors with ingestion of undue amounts of carbohydrate; and sugar in particular has been brought under suspicion. It happens, in fact, that the consumption of sugar has increased notably in many parts of the world while there has been an increase in the incidence and mortality of diabetes. This broad parallelism has led persons to assume a relationship of cause and effect between the dietary use of sugar and the occurrence of diabetes. Critical investigators have often pointed out the unconvincing nature of this sort of logic; and they have further noted statistical discrepancies that seem to invalidate the hypothesis of etiologic relationship. Joslin,[1] for example, has noted that diabetes is not conspicuous among cereal-eating orientals; that diabetes was quite as prevalent in Germany as in the United States at a period when our sugar consumption was much larger; and that England, with a much smaller sugar quota, has only slightly less diabetes. Joslin therefore ventures the conclusion that it is the excess of food rather than of carbohydrate that does the harm. Mills,[2] of the department of internal medicine at the University of Cincinnati College of Medicine, has recently made detailed comparisons of sugar per capita for five years (1923-1928), together with the death rate from diabetes for the most recent year obtainable, and the deaths expressed from diabetes as a percentage of the total deaths. These statistics fail to show any direct relationship between consumption of sugar and deaths from diabetes. Some countries with a high consumption of sugar, as Hawaii, Argentina and Cuba, have a relatively low death rate from diabetes, while some of the countries with a high death rate from diabetes, such as the Netherlands and the Union of South Africa, come fairly well down in the column of sugar consumption. It is to be noted, Mills adds, that, of the thirteen countries highest in consumption of sugar, eleven are found among the thirteen highest in death rate from diabetes. There are many discrepancies, however, indicating a lack of constant relationship between the consumption of sugar and the death rate from diabetes. In some that have shown a gradual but steady increase in the consumption of sugar for many years, there has occurred

1. Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea and Febiger, 1929.
2. Mills, C. A.: Diabetes Mellitus: Sugar Consumption in Its Etiology, Arch. Int. Med. **46**: 582 (Oct.) 1930.

a recent decline in deaths from diabetes. Instead of unwarranted condemnation of a common food of the present day, it is probably more just to render the temporary verdict "not proven."

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Preliminary Program of Meetings to Be Held in Chicago, Feb. 16, 17 and 18, 1931

The next Congress on Medical Education, Licensure and Hospitals will be held in the Palmer House, Chicago, February 16, 17 and 18. The preliminary program is as follows:

CARE OF THE MENTALLY ILL IN THE UNITED STATES
(Monday Morning, February 16)
W. M. ENGLISH, M.D., Presiding
President of the American Psychiatric Association, Brockville, Ont.

Mental Health as a National Problem
Hon. Ray Lyman Wilbur, M.D., Secretary of the Interior, and Chairman, Council on Medical Education and Hospitals, American Medical Association, Washington, D. C.

Federal Activities in the Care of the Mentally Ill
Walter L. Treadway, M.D., Assistant Surgeon General, Division of Mental Hygiene, U. S. P. H. S., Washington, D. C.

State Institutions and Their Relation to Medicine in General
Samuel W. Hamilton, M.D., Bloomingdale Hospital, White Plains, N. Y.

MENTAL HYGIENE
(Monday Afternoon, February 16)
WILLIAM A. WHITE, M.D., Presiding
Superintendent, Saint Elizabeth's Hospital, Washington, D. C.

Rôle of the State Hospital in Mental Hygiene
J. Allen Jackson, M.D., Superintendent, Danville State Hospital, Danville, Pa.

Rôle of Community Clinics in Mental Hygiene
George S. Stevenson, M.D., Director, Division on Community Clinics, The National Committee for Mental Hygiene, New York.

Child Guidance Clinics
Lawson G. Lowrey, M.D., Director, Institute for Child Guidance, New York.

PROBLEMS IN MEDICAL EDUCATION
(Monday Afternoon, February 16)
HENRY S. HOUGHTON, M.D., Presiding
Dean, State University of Iowa College of Medicine, Iowa City

The Present Trend of Medical Education
Charles P. Emerson, M.D., Dean, Indiana University School of Medicine, Indianapolis.

The Significance of Present Entrance Requirements
Wilburt C. Davison, M.D., Dean, Duke University School of Medicine, Durham, N. C.

The Premedical Years
(Speaker to be announced)

Methods of Examining Medical Students for Degrees: A Comparison with European Methods
Willard C. Rappleye, M.D., Director of Study, Commission on Medical Education, New Haven, Conn.

THE TEACHING OF PSYCHIATRY
(Tuesday Morning, February 17)
ADOLF MEYER, M.D., Presiding
Psychiatrist-in-Chief, Johns Hopkins Hospital, Baltimore

Some Present-Day Trends in the Teaching of Psychiatry
Franklin G. Ebaugh, M.D., Director, Colorado Psychopathic Hospital, Denver

The Training of the Specialist in Psychiatry
C. Macfie Campbell, M.D., Director, Boston Psychopathic Hospital, Boston

Psychiatry and the General Practitioner
H. Douglas Singer, Professor of Psychiatry, University of Illinois College of Medicine, Chicago.

PROBLEMS IN MEDICAL EDUCATION (Cont.)
(Tuesday Morning, February 17)
E. P. LYON, M.D., Presiding
Dean, University of Minnesota Medical School, Minneapolis

The Continuous Session Plan
B. C. H. Harvey, M.D., Dean of Medical Students, Graduate School of Medicine of the Ogden Graduate School of Science, University of Chicago, Chicago.

The Preceptor System Plan
Llewellyn R. Cole, M.D., Graduate Hospital of the University of Pennsylvania Graduate School of Medicine, Philadelphia.

A Plan for Training the Medical Student in General Practice
Harry E. Kaplan, M.D., Stockton, Calif.

Deficiencies in the Teaching of Surgery
W. T. Coughlin, M.D., Professor of Surgery and Director of the Department of Surgery, St. Louis University School of Medicine, St. Louis.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES
FIRST SESSION
MEDICAL EDUCATION AND LICENSURE
(Tuesday Morning, February 17)
CHARLES B. PINKHAM, M.D., Presiding
President, Federation of State Medical Boards of the United States, Sacramento, Calif.

Responsibility of Medical Schools to Registration and Licensure
Burton D. Myers, M.D., Chairman, Executive Council, Association of American Medical Colleges, Bloomington, Ind.

Registration of Foreign Medical Graduates in the United States
Willard C. Rappleye, M.D., Director, Commission on Medical Education, New Haven, Conn.

State Board Examinations
William Jepson, M.D., Chairman, Iowa State Board of Medical Examiners, Sioux City.

Discussion: J. Stewart Rodman, M.D., Medical Secretary, National Board of Medical Examiners, Philadelphia; G. M. Williamson, Secretary, North Dakota State Board of Medical Examiners, Grand Forks; J. H. J. Upham, M.D., Member, Ohio State Medical Board and Dean, Ohio State University, College of Medicine, Columbus.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES
SECOND SESSION
STATE BOARD PROBLEMS
(Tuesday Afternoon, February 17)
CHARLES B. PINKHAM, M.D., Presiding

Operation of the Basic Science Law in Wisconsin
J. Gurney Taylor, M.D., Member, Wisconsin State Board of Medical Examiners, Milwaukee.

Nonmedical Directors of State Departments of Public Welfare and Licenses
H. J. Lehnhoff, M.D., Secretary, Nebraska Board of Medical Examiners, Lincoln.

Who Shall Be Permitted to Continue the Practice of Medicine?
F. C. Warnshuis, M.D., Secretary, Michigan Board of Registration in Medicine, Detroit.

Discussion: I. D. Metzger, M.D., President, Pennsylvania Board of Medical Education and Licensure, Pittsburgh; Henry M. Fitzhugh, M.D., Secretary, Maryland Board of Medical Examiners, Baltimore; William Whitridge Williams, M.D., Secretary, Colorado Board of Medical Examiners, Denver.

GRADUATE MEDICAL EDUCATION
(Tuesday Afternoon, February 17)
C. C. BASS, M.D., Presiding
Dean, Tulane University of Louisiana School of Medicine, New Orleans

The Training of the Specialist
William J. Mayo, M.D., Mayo Clinic, Rochester, Minn.

Some "Whats" and "Whys" in Graduate Medical Education
G. H. Meeker, M.D., Dean, University of Pennsylvania Graduate School of Medicine, Philadelphia.

Extension Courses for Rural Physicians
Joe P. Bowdoin, M.D., Deputy Commissioner, State Board of Health, Atlanta, Ga.

The Future of Graduate Medical Education in the United States
James S. McLester, M.D., Member, Council on Medical Education and Hospitals, American Medical Association, and Professor of Medicine, University of Alabama School of Medicine, Birmingham.

HOSPITAL PROBLEMS
(Tuesday Afternoon, February 17)
(Presiding officer to be announced)

The Hospital, Medical College, and Intern
A. C. Bachmeyer, M.D., Superintendent, Cincinnati General Hospital, Cincinnati.

The Hospital Training of Interns
H. L. Foss, M.D., Surgeon-in-Chief, George F. Geisinger Memorial Hospital, Danville, Pa.

Hospitals and the Law
Thomas V. McDavitt, J.D., Bureau of Legal Medicine and Legislation, American Medical Association, Chicago.

Discussion: Fred G. Carter, M.D., Superintendent, Ancker Hospital, St. Paul.

THE TEACHING OF PEDIATRICS
(Wednesday Morning, February 18)
ISAAC A. ABT, M.D., Presiding
Professor of Pediatrics, Northwestern University Medical School, Chicago

Present Status of Pediatric Teaching in Medical Schools
Bordon S. Veeder, M.D., Professor of Clinical Pediatrics, Washington University School of Medicine, St. Louis.

The Position of Pediatrics in Medicine and Medical Teaching
Clifford S. Grulee, M.D., Professor of Pediatrics, Rush Medical College, University of Chicago, Chicago.

What Constitutes a Complete Department of Pediatrics in a Medical School
A. Graeme Mitchell, M.D., B. K. Rachford Professor of Pediatrics, University of Cincinnati College of Medicine, Cincinnati.

FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES
THIRD SESSION
MEDICAL REGISTRATION AND LAW ENFORCEMENT
(Wednesday Morning, February 18)
HAROLD RYPINS, M.D., Presiding
President-Elect, Federation of State Medical Boards of the United States, Albany, N. Y.

Distribution of Physicians in Kentucky
Dr. W. L. Chambers, University of Kentucky, Louisville.

Relation of the Organized Profession to Medical Registration and Enforcement
Walter F. Donaldson, M.D., Member, Council on Medical Education and Hospitals, American Medical Association, and Secretary, State Medical Society of Pennsylvania, Pittsburgh.

The Control of the Unlicensed Practitioners
Hon. Sol. Ullman, Deputy Attorney General of New York, Albany.

The American System of Medical Registration and Licensure
H. M. Platter, M.D., Secretary, Ohio State Medical Board, Columbus.

Discussion: Arthur T. McCormack, M.D., Secretary, Kentucky State Board of Health, Louisville; Thomas J. Crowe, M.D., Secretary, Texas Board of Medical Examiners, Dallas; John R. Neal, M.D., Member, Professional Committee, Department of Registration and Education of the State of Illinois, Springfield.

AMERICAN CONFERENCE ON HOSPITAL SERVICE

FIRST SESSION

CONVALESCENT CARE

(Wednesday Morning, February 18)

HARRY E. MOCK, M.D., Presiding

President, American Conference on Hospital Service, Chicago

Survey of Convalescent Care in the United States
E. H. L. Corwin, Ph.D., Chairman, Committee on Convalescent Care, American Conference on Hospital Service, New York.

Report of Committee to Study Possibilities for Convalescent Care
James A. Britton M.D., Chicago.

(Other subjects and speakers to be announced later)

JOINT SESSION OF THE AMERICAN CONFERENCE ON HOSPITAL SERVICE AND THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION

(Wednesday Afternoon, February 18)

MERRITTE W. IRELAND, M.D., Presiding

The Surgeon General, U. S. Army, and Member, Council on Medical Education and Hospitals, American Medical Association, Washington, D. C.

Physical Therapy and Teaching Hospitals
(Speaker to be announced.)

Occupational Therapy
W. R. Dunton, Jr., M.D., Harlem Lodge, Catonsville, Md.

Rehabilitation and Convalescent Care
E. H. L. Corwin, Ph.D., Executive Secretary, Committee on Public Health Relations, New York Academy of Medicine, New York.

Discussion: Harry E. Mock, M.D., Chicago.

ORGANIZATIONS REPRESENTED

Participating in the congress of the Council on Medical Education and Hospitals of the American Medical Association will be the Federation of State Medical Boards of the United States, and the American Conference on Hospital Service. The Central Council for Nursing Education will hold an institute for lay boards of hospitals and public health nursing organizations, on Tuesday, February 17. The Council on Medical Education and Hospitals takes this opportunity to invite every one who may be interested to attend the three-day conference, whether he receives a personal invitation or not.

REDUCED RAILWAY FARES

In order to obtain the reduced rate of one and one-half fares for the round trip to Chicago, it will be necessary to secure at least 150 receipts showing that full fares have been paid on the trip to Chicago. The reduced fares, if enough receipts are secured, will apply to friends and relatives as well as to those regularly invited to the conference.

Be sure to obtain *a certificate receipt for your fare to Chicago,* however small it may be, so that those coming from distant states or across the continent will have the benefit of the one-half return fare. This receipt, after being countersigned by an official of the passenger associations, who will be present at the Palmer House, will entitle its holder to the reduced fare on the return trip.

DINNERS

All in attendance at the congress, ladies included, will be invited to dinners as follows:

Monday Evening. 7 p. m. The Council on Medical Education and Hospitals will hold a joint dinner with the Central Council on Nursing Education. Toastmaster, Hon. Ray Lyman Wilbur, Secretary of the Interior. Principal speaker, Dr. Henry A. Christian, Hersey Professor of the Theory and Practice of Physic, Harvard University Medical School. Informal.

Tuesday Evening. 6:30 p. m. Federation Dinner. John W. MacConnell, M.D., Davidson, North Carolina, vice president, presiding. Address of the president, Charles B. Pinkham, M.D., Sacramento, Calif. Informal.

CONTRIBUTIONS TO PERSHING MEMORIAL

The response to the request for contributions for the Medical Salon in Pershing Hall, Paris, has not been as prompt or as extensive as it should be. It is to be hoped that the medical profession will see the desirability of aiding this cause. It is far better to have small contributions from many physicians than to depend on a few to make up the total. Up to noon of December 15, additional contributions were received from the following:

Thomas K. Davis, M.D., New York
Howard Fox, M.D., New York
Francis M. O'Gorman, Buffalo
Macy L. Lerner, M.D., Rochester, N. Y.
J. L. Lattimore, M.D., Topeka, Kan.
J. H. Walsh, M.D., Chicago
Charles H. Hulick, M.D., Shelbyville, Ill.
James C. Ferguson, M.D., St. Paul
Harvey B. Stone, M.D., Baltimore
G. Willis Bass, M.D., Minneapolis
Henry Holm, M.D., Detroit
S. N. Trockey, M.D., Chicago
Donald D. Forward, M.D., Ashtabula, Ohio
Mary Harley, M.D., Sweet Briar, Va.
Allen H. Bunce, M.D., Atlanta, Ga.
Wallace C. Dyer, M.D., Evansville, Ind.
Harmon L. Stanton, M.D., Evansville, Ind.
Robert Acker, M.D., South Bend, Ind.
W. H. Wilmer, M.D., Baltimore
James McCrea, M.D., Fulda, Minn.
J. Scott Oehrle, M.D., Monongahela, Pa.
Orlando H. Petty, M.D., Philadelphia
R. E. Seitz, M.D., Bozeman, Mont.
Fred E. Clow, M.D., Wolfeboro, N. H.
Eugene J. Asnis, M.D., Philadelphia
J. Forrest Burnham, M.D., Lawrence, Mass.
Clifford J. Pearsall, M.D., Salt Lake City
Ira I. Kaplan, M.D., New York
O. B. Pomeroy, M.D., Cleveland
Walter A. Strayer, M.D., Glenshaw, Pa.
H. H. Amsden, M.D., Concord, N. H.
Walter L. Bierring, M.D., Des Moines, Iowa
George F. Glass, M.D., Cleveland
Reginald Fitz, M.D., Boston
Alfred Meyer, M.D., New York
W. Eugene Currier, M.D., Leominster, Mass.
Albert Evans, M.D., Boston
Frank Brooks Foster, M.D., Peterborough, N. H.
Joseph P. McMahon, M.D., Milwaukee
David P. Waldman, M.D., New York
Esther M. Closson, M.D., Tucson, Ariz.
Max Dreyfoos, M.D., Cincinnati
M. L. Holliday, M.D., Fillmore, Mo.
Joseph Baum, M.D., Far Rockaway, N. Y.
J. J. Hood, M.D., Cicero, Ill.
George W. Norris, M.D., Philadelphia
Mitchell Seltzer, M.D., Dallas, Texas
F. A. Long, M.D., Madison, Neb.
Vincent S. Mancuso, M.D., Detroit
W. R. Roberts, M.D., Cissna Park, Ill.
R. R. McHenry, M.D., Norfolk, Va.
Henry Abrahm, M.D., San Francisco
Henry M. Mills, M.D., Brooklyn
W. H. Garrison, M.D., White Hall, Ill.
Franklin W. Mathewson, M.D., Oakdale, Pa.
A. Szwajkart, M.D., Chicago
Damon B. Pfeiffer, M.D., Philadelphia
Joel E. Goldthwait, M.D., Boston
W. E. Carson, M.D., Pittsburgh
G. S. Murray, M.D., Columbus, Ga.
James F. Rooney, M.D., Albany, N. Y.
James B. Ungles, M.D., Satanta, Kan.
Marshal Fabyan, M.D., Boston
William T. Myers, M.D., Aldrich, Mo.
P. C. Coleman, M.D., Colorado, Texas
L. P. Warren, M.D., Wichita, Kan.
A. M. Purves, M.D., Des Plaines, Ill.
J. E. Keeling, M.D., Waldron, Ind.
W. Q. Skilling, M.D., Lonaconing, Md.
Zoda D. Lumley, M.D., Wood River, Ill.
L. B. McBrayer, M.D., Southern Pines, N. C.
James W. Smith, M.D., New York
Winfield Scott Cleland, M.D., Delta, Colo.
Ernest S. du Bray, M.D., San Francisco
R. de R. Barondes, M.D., San Francisco
Salinas, Monterey Chapter, Disabled American Veterans World War, California
Robert Emery Brennan, M.D., New York
Charles T. Francis, M.D., Fairmont, W. Va.
John H. Peck, M.D., Des Moines, Iowa
Paul M. Allis, M.D., Lewistown, Pa.
Abby N. Little, M.D., Laconia, N. H.
Friend, Peoria, Ill.
Albert A. Hornor, M.D., Boston
William E. Stevens, M.D., San Francisco
E. G. Brandenberger, M.D., Detroit
Leonard F. Bender, M.D., Frankford, Pa.
Richard Reeser, M.D., Columbia, Pa.
George E. Alleman, M.D., Altoona, Pa.
C. W. Mack, M.D., Livermore, Calif.
Ira Cohen, M.D., New York
Delaware County Medical Society, Chester, Pa.
George H. Garrison, M.D., Oklahoma City
J. R. Knowles, M.D., North Station, Boston
Samuel Steiner, M.D., Philadelphia
S. Fosdick Jones, M.D., Denver
Clifford Grulee, M.D., Chicago

THE PHILADELPHIA SESSION

Announcement of Exhibit under the Auspices of the Section on Diseases of Children

The officers of the Section on Diseases of Children have appointed the following as members of the Committee on Section Exhibit: T. C. Hempelmann, M.D., St. Louis; Joseph Stokes, Jr., M.D., Philadelphia, and F. Thomas Mitchell, M.D., chairman, Memphis, Tenn.

The committee announces that it is desirous of having a creditable and enlightening section exhibit. The topics suggested by the committee are:

(*a*) Relation Between Underweight and Malnutrition.

(*b*) Diet in Pediatric Practice.

(*c*) Selected Exhibits of Educational and Research Character.

The members of the specialty are asked by the committee to determine whether or not they have work suitable for exhibition and, if so, to communicate with the committee chairman, Dr. F. Thomas Mitchell, 376 South Bellevue Street, Memphis, Tenn. All applications must be made on the regular application form, which is the one required by the A. M. A. Committee on Scientific Exhibit. A circular letter giving information concerning this exhibit, together with the usual application blank, has been mailed to those who have registered in the section during the last three years and to subscribers to the Jacobi Fund. Those who have not registered in this section but who are interested in such an exhibit may obtain a circular letter and application blank by sending the request to Dr. Mitchell or to the Director, Scientific Exhibit, 535 North Dearborn Street, Chicago. Applications should be filed not later than Feb. 10, 1931, with Dr. Mitchell.

Committee Appointments

Dr. George C. Yeager, chairman of the Local Committee on Arrangements, has appointed Dr. Frederick S. Baldi chairman of the Subcommittee on Hotels; Dr. Joseph C. Doane chairman of the Subcommittee on Publicity, and Dr. Fred D. Weidman chairman of the Subcommittee on Scientific Exhibit.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:15 on Tuesday, 10:30 on Thursday and 10 on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 22. What Is Tuberculosis?
December 23. The Century's Greatest Story.
December 27. The Wooden Indian.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

December 22. Is It Blue Monday or Rose Monday?
December 23. Don't Blame the Weather.
December 24. The Disease That Deforms.
December 26. The Pace That Kills.
December 27. Save the Children from Scarlet Fever.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Illegal Practitioner Jailed.—Augustin Ocampo, Los Angeles, was arrested, November 5, on a charge of practicing medicine without a license. He pleaded guilty in municipal court, was sentenced to 180 days in jail and is now serving the sentence. January 10, he pleaded guilty on two counts to violation of the state medical practice act and was given a thirty day suspended sentence on each count. Ocampo claimed that he practiced in the city of Mexico for twelve years, coming to California in 1929.

Society News.—The San Francisco County Medical Society was addressed, November 18, by Dr. Samuel H. Hurwitz on "Asthma and Occupation"; Dr. Adolph Berg presented a case of acrodynia, and Drs. Edward B. Shaw, Huldah E. Thelander and Margaret A. Limper, motion pictures demonstrating the early diagnosis of poliomyelitis.——The Los Angeles County Medical Association was addressed, December 5, by Dr. William Gerry Morgan, Washington, D. C.; Dr. Joseph Colt Bloodgood, Baltimore, spoke on "The Importance for the Patient of the Diagnosis of Cancer and Lesions That Are Not Cancer by Both the General Practitioner and the Specialist."——Drs. Albert L. Mathieu, Portland, and Oscar Donovan Johnson, Los Angeles, addressed the Los Angeles Obstetrical Society, December 9, on "The Aschheim-Zondek Pregnancy Test" and "Uterotubal Insufflation with Kymographic Tracings," respectively; Dr. Rudolph Marx presented a case report on acardiacus amorphus.——Dr. Edward B. Towne, San Francisco, addressed the San Diego County Medical Society, December 9, on "Roentgen Ray in Diagnosis and Localization of Tumors of the Brain."——Dr. Joseph C. Aub, Harvard University Medical School, Boston, addressed the San Diego Academy of Medicine, December 8, on "The Rôle of Inorganic Salts in Internal Medicine."——Dr. Oliver Hazard Perry Pepper, University of Pennsylvania School of Medicine, Philadelphia, will give the annual Scripps Metabolic Clinic Lectures in San Diego, January 8-10. He will deliver an evening lecture in La Jolla, January 10, on types of anemia, exclusive of pernicious anemia.——Dr. Paul J. Hanzlik, professor of pharmacology, Stanford University School of Medicine, San Francisco, gave a series of lectures, December 16-19, before the San Diego Academy of Medicine and the Long Beach Academy of Medicine, on bismuth compounds in antisyphilitic therapy, metallotherapy of edema, intravenous therapy and colloidal dyes in intoxications.——Dr. Albert H. Rowe, Oakland, addressed the Alameda County Medical Association, December 15, on "Bronchial Asthma."

New Life Sciences Building at University of California.—The work of moving thirteen departments from eleven wooden frame buildings into the new fireproof Life Sciences Building at the University of California was completed in July. The building, which is said to be the largest building devoted to academic purposes on any campus in America, is about 500 feet long, 250 feet wide, five stories high, and in the form of

a rectangle built around a court. There are 560 offices, laboratories, classrooms, auditoriums, and museum and library rooms, one auditorium seating 560 people and two smaller rooms each seating 208. The departments housed in the building are bacteriology, anatomy, biochemistry, botany, household science, hygiene, vertebrate zoology and museum of vertebrate zoology, physiology, plant nutrition, psychology and zoology, and three bureaus of the state board of health maintain offices and laboratories there. The building is constructed of reinforced concrete with natural finish on the outside. Interior partitions are made of sound-proof hollow tile painted white. The classrooms and auditoriums are finished in acoustic plaster.

ILLINOIS

Personal.—The Ottawa Tuberculosis Sanatorium was recently purchased by Dr. Royal W. Dunham.

Chicago

Reduction in Rates for Nurses.—Under a plan announced by the Chicago Medical Society, the services of trained nurses may be obtained for twenty hours at a cost of one dollar more than the prices previously charged for twelve hours. The rate will be $8 for a twenty hour day. The present rate of $7 for a twelve hour day remains as at present. The plan also makes available the practical nursing and undergraduate nursing service at one-third less cost than graduate service. Hourly nursing service will be obtainable at a rate of $2 flat for the first hour and $1 each hour thereafter when the family physician believes this will be sufficient. The new rates result from the fact that the public at present is disposed to cut nursing time to the minimum. More cases are now being cared for by relatives and neighbors, it is reported, than at any time in the last ten years. Already 60 per cent of the demand is for twenty hour service and only nurses who exemplify the highest standard are suitable for this. The new service is available through the nurses' registry of the Chicago Medical Society.

Society News.—Dr. Richard B. Stout, Madison, Wis., addressed the Chicago Surgical Society, November 7, on "Spinal Anesthesia Volume Control Technic."——The Chicago Pathological Society was addressed, November 10, among others, by Drs. Evan M. Barton and Lloyd Catron on "Dissecting Aneurysm of the Aorta" and "Leiomyosarcoma of the

Pleura," respectively. —— Dr. Grafton Elliot Smith of the Institute of Anatomy, University College, London, England, addressed a joint meeting of the Institute of Medicine of Chicago and the University of Chicago, November 26, on "The Peking Man and the Evolution of the Human Brain."——The eighth annual joint meeting of the Illinois and Chicago societies of industrial medicine and surgery was addressed, December 3, by Drs. Hiram W. Orr, Lincoln, Neb., and Henry W. Newman, Cincinnati, on "Osteomyelitis" and "Nonsurgical Industrial Medicine," respectively. —— The first meeting of the Chicago Society of Allergy will be addressed, December 22, by Drs. Samuel M. Feinberg and Harry L. Huber on "Historical Aspects of Allergy" and "Variations in Tolerance to Pollen Extracts," respectively.——Dr. James B. Herrick gave a brief memorial tribute to Dr. Charles E. Paddock before the Chicago Gynecological Society, December 19. Other speakers were: Drs. Alexander G. Gabrielianz on "Spinal Anesthesia in Gynecology," and Jacob P. Greenhill, "Rupture of a Corpus Luteum with Intra-Abdominal Hemorrhage."——The Chicago Roentgen Society was addressed, December 10, by Drs. George T. Palmer, Springfield, Ill., on "X-Ray Diagnosis of Tuberculosis," and William A. Evans, Detroit, "Indications for and Results of Surgical Treatment of Pulmonary Lesions as Observed Roentgenologically"; Dr. Benjamin Goldberg spoke on "Roentgenologic Aspects of Pulmonary Tuberculosis in Childhood."——Among others, Dr. Sol R. Rosenthal addressed the Chicago Pathological Society, December 8, on "Aneurysm of the Cystic Artery and Melanocarcinoma of the Gallbladder." ——Among the speakers who addressed the Chicago Tuberculosis Society, December 11, were: Drs. Robert G. Bloch on "Experimental Infection with Tuberculosis"; Russell D. Herrold, "Laboratory Diagnosis of Tuberculosis," and Ralph B. Bettman, "Feasibility of Intrapleural Operations."——The Chicago Society of Internal Medicine was addressed, December 15, among others, by Dr. Joseph L. Miller on "Classification, Etiology and Pathology of Chronic Arthritis."

MASSACHUSETTS

Society News.—Dr. Walter B. Cannon, Boston, addressed the Harvard Medical Society, December 9, on emotional increase of heart rate, and Dr. John M. Flynn, on sulphur metabolism. —— Dr. Harry M. Zimmerman, Yale University School of Medicine, New Haven, Conn., spoke before the New England Pediatric Society in Boston, December 12, on "Nonpurulent Encephalitis in Children."——Dr. Harry Blotner, Boston, addressed the Haverhill Medical Club, December 4, on "Periodic Health Examinations."

Personal.—Dr. James Arthur Gage, Lowell, recently retired from the practice of medicine and surgery; he was honored at a testimonial banquet given by the Middlesex North District Medical Society, December 10.——Dr. Otto Folin, Hamilton Kuhn professor of biologic chemistry at Harvard University Medical School, recently received the Scheele Medal of the Chemical Society of Stockholm. He is the first recipient of that medal. Announcement of its award was made at the dedication of the building of the Rockefeller Institute for Biochemistry in Stockholm.

MISSOURI

Milk Commission Discontinues Milk Distribution.—After twenty-six years of service in distributing pure milk for infant feeding among poor families, the St. Louis Pure Milk Commission recently turned over this function to four local social agencies. The laboratory of the commission was opened in June, 1904, for sterilizing and modifying milk, which was distributed to congested districts to be dispensed on prescription of physicians. During the twenty-six years, 8,952,612 bottles were distributed. An infant welfare station opened in 1906 under the auspices of the commission is said to have been the first of these stations in the United States.

Society News. — Dr. Samuel R. Cunningham, Oklahoma City, addressed the Jackson County Medical Society, December 9, on "Skeletal Traction in the Treatment of Fractures of Long Bones."——The South East Missouri Medical Association held its fifty-fourth annual meeting in Poplar Bluff, October 7-8; the following speakers and their subjects were included in the program: Drs. Daniel H. Hope, Cape Girardeau, "Ectopic Pregnancy, Causes and Treatment"; John D. Hayward, St. Louis, "Fundamentals in Diagnosis of the Acute Abdomen," and Neil S. Moore, St. Louis, "Late Syphilis Involving the Genito-Urinary Organs." The next annual meeting will be held at Campbell.

NEBRASKA

Personal.—A portrait of Dr. John E. Summers, Omaha, a gift of medical and lay friends, was unveiled at the Clarkson Hospital, Omaha, November 2. Dr. Donald Macrae, Jr., Council Bluffs, Iowa, spoke of the life work of Dr. Summers. He has been president of the Nebraska State Medical Association, the Missouri Valley Medical Association and the Western Surgical and Gynecological Society.

Society News.—Physicians of Dawes County and the surrounding territory met at Chadron, November 12, and organized the North-West County Medical Society; Drs. Albert L. Cooper, Scottsbluff, and Frank B. Young, Gering, gave an illustrated lecture on "Some Aspects of Paleopathology"; the second Wednesday of the month was chosen as the date of meeting. —— The Cheyenne-Kimball County Medical Society was addressed in Sidney, November 14, by Drs. Dee L. Abbott, Sidney, and Joseph B. Pankau, Dalton, on "Anaphylaxis" and "Treatment of Pneumonia," respectively.

Testimonial Dinner to Dr. Orr.—Members of the Lancaster County Medical Society tendered a testimonial dinner, November 4, to Dr. Hiram W. Orr, Lincoln, on his completion of twenty-five years of service at the Nebraska Orthopedic Hospital. A testimonial inscription bearing the names of all those present at the dinner was presented to Dr. Orr. Among others, Dr. John P. Lord, Omaha, reviewed the history and early struggles of the orthopedic hospital, of which he was the first surgeon, with Dr. Orr as his assistant. Dr. Orr was president of the Nebraska State Medical Society in 1920.

NEW YORK

Society News. — The Medical Society of the County of Albany was addressed, December 15, by Dr. Charles K. Winne, Jr., on "Serum Therapy in Scarlet Fever."——The Queensboro Pediatric Society was addressed, December 11, at Forest Hills, Long Island, by Drs. Benjamin Kramer, Brooklyn, on "Rickets —History, Pathology, Diagnosis and Treatment," and Lee W. Thomas, "The Maintenance of Child Health."

Eastman Gives Dental Clinic to Stockholm. — George Eastman, Rochester manufacturer, is reported to have given $1,000,000 to the city of Stockholm, Sweden, for a dental dispensary similar to the Rochester Dental Dispensary and to those recently established by Mr. Eastman in London and Rome. The Stockholm clinic will include one feature not provided for in the other foreign cities, a school for dental hygienists similar to that of the Rochester dispensary. The Chicago *Tribune* says that the gift has been accepted and a site chosen for the building.

New York City

Historic Microscope.—A microscope thought to be nearly 200 years old has been presented to the New York Academy of Medicine by Dr. Warren Coleman. The case bears a brass plate on which is engraved: "This Microscope brought from Holland by Jan Evertson Keteltas in the year 1649 is given by his Descendant Henry Keteltas Aug 12th 1895 to Doctor Warren Coleman as a pleasant remembrance." According to a plate inside the case, the instrument was made by Benjamin Cole, who is known to have entered business in London in 1751. Authorities believe, therefore, that the microscope given to Dr. Coleman was not the one originally brought to this country in 1649, but one that replaced it about 100 years later.

Loss of Light Due to Smoke.—A report recently issued by the U. S. Public Health Service described the loss of light due to smoke on Manhattan Island with special reference to its relation to the nature of the weather, the relative humidity of the air and the velocity and direction of the wind. The investigations were made simultaneously on the roof of the U. S. Marine Hospital, 67 Hudson Street, which is 79 feet above street level and 93 feet above high water, at the lower end of Manhattan Island where the air is unusually smoky and on the roof of a building at the U. S. Quarantine Station on Staten Island in lower New York Bay, 35 feet above the ground and 40 feet above high water, located about 9 miles south of the marine hospital, where the air was comparatively clear. The instruments used for recording daylight consisted of photo-electric cells and the recording potentiometer. The comparison of results showed that there was a large relative loss of light at the Hudson Street hospital due to smoke, in some cases greater than 50 per cent. The average percentage loss for the whole year was 16.6 for clear days; 34.6 for cloudy days, and 21.5 for all days. The average percentage loss of light throughout the year was 30.2 at 8:30 a. m., 16.5 at 1:30 p. m., and 21.0 at 3:30 p. m. The percentage losses increased

and decreased with the relative humidities. For clear days the greatest average monthly percentage loss was 23.1 in November and the least 12.1 in May, with corresponding average relative humidities of 64.6 and 39.0 per cent. For cloudy days these values were 52.7 in September and 24.6 in December with corresponding relative humidities of 99.4 and 85.9 per cent. The percentage loss of light was found to be 1.5 times as great for cloudy days as for clear days for relative humidities between 40 and 80 per cent and for wind velocities between 10.0 and 19.9 miles per hour.

Society News. — At the annual meeting of the Frontier Nursing Service, January 15, at Mecca Hall, Mrs. Mary Breckinridge, director of the field work, will present motion pictures in connection with her annual report of the work in the Kentucky mountains.——Dr. Joseph Colt Bloodgood will address the International and Spanish Speaking Association of Physicians, Dentists and Pharmacists, December 26, on the education of the public in malignant and nonmalignant diseases and the popularization of periodic health examinations. The society was addressed, November 28, by Dr. Anthony Bassler on "Intestinal Toxemia," illustrated, and Dr. Oswald S. Lowsley, "Intravenous Pyelography with Uroselectan."——Dr. Byron H. Goff addressed the Brooklyn Gynecological Society, December 5, on "A Histologic Study of the Vaginal Walls in Cystocele and Rectocele."——Dr. George R. Minot, Boston, will give the seventh of a series of afternoon lectures at the New York Academy of Medicine, January 9, on "Treatment of Anemia." The fifth lecture was delivered by Dr. Alfred F. Hess, December 12, on "Therapeutics of Ultraviolet Light," and the sixth by Miss Frances Perkins, state industrial commissioner, Albany, December 19, on "Occupational and Industrial Diseases."——Dr. Merrill C. Sosman, Boston, addressed the New York Roentgen Society, December 15, on "The Value of the X-Rays in the Diagnosis of Intracranial Tumors."—— At a meeting of the New York Pathological Society, December 17, addresses were delivered by Drs. Arthur J. Lapovsky and Boris Kwartin on "Ruptured Ovarian Pregnancy"; Benjamin M. Vance on "Injuries of the Pons"; Helen Sinclair Pittman on "An Evaluation of the Erythrocyte Sedimentation Reaction as a Routine Diagnostic Procedure in the General Hospital"; Nicholas M. Alter, Marshall C. Pease, Jr., and Adolph G. DeSanctis on "Albers-Schoenberg Disease; 'Marble Bones.'"——The Medical Association of the Greater City of New York conducted a symposium on medical hydrology, December 15, with Drs. William Edward Fitch, Bedford Springs, Pa., and Allen W. Holmes, Watkins Glen, N. Y., as the speakers.

OHIO

Personal.—Dr. Vera C. Iber, formerly of Eaton, has been appointed head of the department of women's diseases at the Mayo Clinic, Rochester, Minn.——Dr. George Bourne Farnsworth, for twenty years on the faculty of Western Reserve University School of Medicine, has resigned as assistant professor of obstetrics. He will retire from active practice to devote his time to travel.

Hospital News.—A new $500,000 pediatric research building has been opened at Children's Hospital, Cincinnati. Dr. Albert Graeme Mitchell is director of the hospital.——A new division devoted to neuropsychiatry was recently opened at Mercy Hospital, Canton, under the supervision of Dr. John D. O'Brien. Patients may be referred for supervision and treatment or for consultation only; when patients are referred for treatment, the hospital invites the physician to act as consultant. The purpose of the hospital is to make available sound information on mental health and to help bring neuropsychiatric service within the reach of persons of moderate means.

Drought-Stricken Cities Ask Aid. — Four Ohio cities, reported to be suffering severely from the long continued drought and in danger of typhoid epidemics, have appealed to the state department of health for relief. Barnesville, largest of the towns, had only two weeks' supply of water December 4. By laying an emergency pipe line to an abandoned mine, engineers of the health department were able to increase the supply to last about thirty days. Caldwell, a town of 1,800 persons, was said to have no water. Until recently the town had pumped sewage flow from a creek for water to fight fires, but with the coming of cold weather this supply was frozen. Blanchester and Greenwich are the other towns in which conditions are said to be alarming. Unless some other means of relief is found, it will be necessary to transport water from other towns.

PENNSYLVANIA

Society News.—The Cambria County Medical Society was addressed in Johnstown, December 11, by Dr. Robert C. Davis, on "Treatment of Varicose Veins"; Dr. Olin G. A. Barker delivered a lecture and presented motion pictures on Russia; Dr. Henry K. Mohler, Philadelphia, addressed the society, November 13, on "Disturbances of Carbohydrate Metabolism in Relation to Cardiovascular Disease."——Raymond Adams Dutcher, head of the department of biochemistry at Pennsylvania State College, State College, addressed the Lycoming County Medical Society, December 12, on "Vitamins in Human and Animal Nutrition."

TENNESSEE

Hospital News. — A Negro unit as an addition to the Knoxville General Hospital was assured when the city council of Knoxville voted an appropriation of $25,000 toward the cost, November 28, it is reported in the Knoxville *Journal*. The Julius Rosenwald Foundation contributed $50,000 and the remainder of the fund has been contributed from local sources. Negro physicians, interns and nurses will comprise the staff of the unit, in accordance with an agreement with the Rosenwald Foundation.

VIRGINIA

Personal.—Henry G. Parker, city bacteriologist of Norfolk since 1917, and recently assistant director of public welfare, has been made director of public welfare to succeed Dr. Powhatan S. Schenck, who is on indefinite leave of absence on account of ill health. Dr. Frank H. Hancock, physician to the municipal hospital, has recently been installed as health commissioner. Dr. Schenck had served in the dual capacity since 1918.

University News.—An anonymous gift of $2,500 for purposes of chemicomedical research at the Medical College of Virginia, Richmond, has been announced. This gift will make possible a full time worker for one year in the department of chemistry. Other departments of the school of medicine will fully cooperate in the special line of study to be undertaken and will share in responsibility for the work. William John Gies, Ph.D., New York, was the chief speaker at the medical college on founder's day, December 1, on the ninety-third anniversary of the institution. His subject was "Progress in Health Services."

WEST VIRGINIA

Society News.—"Technic of Elective Version with Lantern Slide Demonstration Including Immediate Repair of Birth Canal Injuries Following Delivery" was the subject of Dr. Irving W. Potter, Buffalo, before the Ohio County Medical Society, Wheeling, December 5. Dr. Eugene P. Pendergrass, Philadelphia, addressed the society, November 21, on "X-Ray Diagnosis of Diseases of the Upper Respiratory Tract."

Licensure Requirements Raised. — The Public Health Council at a meeting at Morgantown, November 20-22, adopted the following regulations raising the requirements for the licensure of physicians: 1. All applicants for license by examination shall be required to have served one year of internship in a class A hospital before admission to the examination. 2. License by reciprocity will be issued only to those who have passed an examination subsequent to internship before the examining board of the state from which the application is filed. 3. Under no circumstances will applicants be admitted to the examination who have not received their professional degree. The regulation concerning reciprocity is not retroactive, it was stated.

WISCONSIN

Testimony of Physicians. — A proposal to change court rules to compel physicians to testify concerning information from patients in cases involving questions of sanity was defeated in the Wisconsin supreme court recently. The court held that the present procedure is a matter of substantive law and not a matter of practice and cannot be changed by the court.

Society News.—The Wood County Medical Society was addressed, November 11, at Marshfield, among others, by Dr. George L. McCormick, Marshfield, on "Recent Advances in Eye, Ear, Nose and Throat Treatment."——"Some Things the General Practitioner Should Know Regarding Nervous and Mental Diseases" was the subject of Dr. Arthur W. Rogers, Oconomowoc, before the November 13 meeting of the Marinette-Florence County Medical Society.——The University of Wis-

consin Medical Society was addressed, November 21, by Dr. John Stanley Coulter, Chicago, on "Physical Therapy in General Practice."

GENERAL

Fraudulent Magazine Solicitor.—A man giving his name as D. L. Allerton and claiming to be a representative of Harper and Brothers is reported to be soliciting subscriptions to various publications from physicians in Iowa, Missouri and Nebraska. In answer to an inquiry, the firm of Harper and Brothers said that it did not employ agents and that the National Publishers Association was making an effort to apprehend the impostor.

Medical Bills in Congress.—S. J. Res. 213, introduced by Senator Smoot, Utah, and H. J. Res. 413, introduced by Representative Erk, Pennsylvania, propose to designate the first United States narcotic farm, to be established near Lexington, Ky., as the Stephen G. Porter Institute. S. 4784, introduced by Senator Bingham, Connecticut, and H. R. 14054, introduced by Representative Goss, Connecticut, propose to amend the National Prohibition Act, as supplemented, to permit physicians to prescribe malt liquors for medicinal purposes. H. R. 14268, introduced by Representative Rutherford, Georgia, proposes that officers, soldiers, sailors or marines who served in the military or naval forces of the Confederate states shall hereafter be admitted to the National Home for Disabled Volunteer Soldiers and to hospitals under the jurisdiction of the Veterans' Administration. H. R. 14275, introduced by Representative Glover, Arkansas, proposes to regulate the prescribing and use of waters from the Hot Springs Reservation at Hot Springs, Ark. H. R. 14693, introduced by Representative LaGuardia, New York, proposes to regulate the traffic in opium and narcotics, by regulating the shipments of such drugs to the United States from countries not signatories to the Hague Convention.

Another Child Welfare Foundation.—W. K. Kellogg of Battle Creek, Mich., has established a fund of $1,000,000 for immediate use with provision for additions that may reach $50,000,000, to be devoted to the aid of underprivileged children. The fund is to be known as the W. K. Kellogg Child Welfare Foundation. Children who are subnormal mentally or physically will receive scientific treatment to correct their defects or, if this is not possible, special training to minimize their handicaps. The work will be done largely in cooperation with schools. The activities will not be limited to Michigan, but aid will be extended wherever the need is apparent, subject to policies now being formulated. Dr. Stuart Pritchard, formerly of the Battle Creek Sanitarium staff, took up his duties as medical director of the foundation, December 1 (THE JOURNAL, December 6, p. 1751). Management of the foundation will be in the hands of a board, which includes, in addition to Dr. Pritchard: Wendell L. Smith, president and director; Eugene McKay, vice president and director; Lewis J. Brown, secretary-treasurer and director; Dr. Arthur C. Selmon and Earle Freeman, directors. During the past summer Mr. Kellogg established the Ann J. Kellogg School for Underprivileged Children at Battle Creek and a camp at Sherman Lake, where these children may spend summers under medical supervision.

Death Rate Decreases in 1929.—The U. S. Department of Commerce announced recently that 1,386,363 deaths occurred in 1929 in the registration area in continental United States, corresponding to a rate of 11.9 per thousand of population as compared with 12.1 in 1928. This area in 1929 comprised forty-six states, the District of Columbia, and nine cities in nonregistration states, with an estimated population, July 1, 1929, of 116,275,139, or 95.7 per cent of the total population; in 1928 the registration area included 95.3 per cent of the total population. The death rate from all causes per hundred thousand of population decreased from 1,207.1 in 1928 to 1,192.3 in 1929. This net decrease was almost entirely balanced by increases in influenza, diseases of the heart and meningococcus meningitis. Deaths from these three diseases alone caused 21.2 per cent of all deaths in 1928, and 22.7 per cent in 1929. Decreases among other important causes were for pneumonia (all forms), nephritis, congenital malformations and diseases of early infancy, tuberculosis (all forms), diarrhea and enteritis, diabetes mellitus, cancer and pellagra. Deaths from alcoholism decreased from a rate of 4.1 in 1928 to 3.7 in 1929. Deaths from accidental and unspecified external causes increased from 79.4 to 80.9. The types of accidents which showed the most noticeable increases were automobile accidents, excluding collisions with railroad trains and street cars (20.8 to 23.3) and accidental falls (14.1 to 14.6). A slight decrease was shown for deaths from drowning.

Report of Public Health Service.—Health conditions throughout the United States have been generally good during the past fiscal year, Surg. Gen. Hugh S. Cumming of the U. S. Public Health Service stated in his annual report to the present session of Congress. The death rate for pellagra has risen steadily from 2.5 per hundred thousand of population in 1924 to 5.5 in 1929. For five years there has also been a steady increase in the number of cases of meningococcus meningitis, but a slight decrease was noticed in the spring of 1930. Infantile paralysis was less prevalent than for several years during the calendar year 1929, but in the part of 1930 covered by the report a sharp increase was reported from several states. Smallpox has been increasing in the United States for three years. In forty-five states 34,685 cases of smallpox were reported in 1927, 38,114 in 1928 and 41,458 in 1929; 442 deaths occurred, although the disease was in most cases of a mild type. In the work of protecting the United States from importation of diseases from other countries, the report states that 20,645 vessels, 1,056,294 passengers and 1,380,241 seamen were inspected at domestic and insular ports and 1,211,796 alien passengers and 968,759 alien seamen were examined under the immigration law. Medical facilities for the care of seamen from merchant vessels were provided in 155 ports of continental United States and its insular and territorial possessions. The rapid development of intercontinental air travel has added a new phase to this work, the report points out. It is more necessary than ever to keep in touch with disease conditions throughout the world. Important events of the year were the change of the name of the Hygienic Laboratory to the National Institute of Health, with provision for acceptance of philanthropic gifts to finance research, and the creation of a division of mental hygiene, which assumed supervision of medical service in federal penal and corrective institutions. Congress also granted authority to the service for investigation of the abusive use of narcotics and the quantities necessary to supply the legal requirements of physicians in the United States. The personnel of the service in June, 1930, consisted of 1,476 medical officers and persons of other scientific ratings and 3,416 general and technical employees.

Maternal Mortality in the Registration Area.—The U. S. Department of Commerce announces that for the birth registration area the mortality from puerperal causes (7.0 per thousand live births) in 1929 was five tenths higher than the rate (6.5) for 1927, the last year for which the summary was published. The report says: "Confining the discussion to only three groups, namely, 'all puerperal causes,' 'puerperal septicemia' and 'other puerperal causes,' it will be noted that of the forty-six states for which data are available for 1929, South Carolina had the highest mortality rate (11.4), with Alabama and Louisiana next in order (each 9.9), Florida (9.5) and Georgia (9.3)." All the states with excessively high rates have large proportions of Negro populations. The states with high rates from puerperal septicemia are Montana (4.2), Colorado (4.0), New Mexico (3.9) and Arizona (3.8), all with vast rural areas sparsely settled, where hospital facilities and skilled medical care are difficult to procure. "Accidents of pregnancy" had a rate of only 0.7 for the entire registration area; puerperal hemorrhage and other accidents of labor, a rate of 1.6; and puerperal albuminuria and convulsions, 1.8, while the rates in the states for the three causes, respectively, were highest for Vermont (1.3), Delaware (3.0) and South Carolina (4.7). Heretofore the total number of deaths from these three causes has been listed under "other puerperal causes." Of the cities of 100,000 population in 1920, the highest rate for puerperal causes was for Memphis (16.0), followed by Nashville (14.7) and Birmingham (14.4). For accidents of pregnancy and for puerperal hemorrhage and other accidents of labor, Memphis again led with respective rates of 2.3 and 4.3 per thousand live births, while for puerperal albuminuria and convulsions, New Orleans had the highest rate (4.4). The city with the highest rate for puerperal septicemia was Nashville (9.0), followed by Memphis (6.1) and Akron and Birmingham (each 5.7). Cities that reached 100,000 population at the census of 1930 are included in the table and for these the highest rate (14.1) for all puerperal causes was for Jacksonville, Fla. The highest rate was that of Jacksonville, Fla. (2.7), for accidents of pregnancy; for puerperal hemorrhage and other accidents of labor Chattanooga was highest with a rate of 3.3; for puerperal septicemia Peoria had the highest rate, 8.9; Knoxville had the highest rate (4.0) from puerperal albuminuria and convulsions, and Somerville had the highest rate (1.2) for other puerperal causes.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 29, 1930.

An All-India Medical Council

The withdrawal of recognition of Indian medical degrees by the general medical council because of the refusal of Indian universities to allow inspection of their examinations was reported in THE JOURNAL, April 12, page 1156. The holding of an all-India conference for the maintenance of proper standards in provincial institutions for medical education has also been reported (August 9, p. 423). This conference of provincial and university representatives considered the creation of an all-India medical council for the purpose of maintaining a uniform standard of qualifications for the graduates of Indian universities and decided that the necessary steps should be taken without delay. The general medical council has expressed, by its president, Sir Donald Macalister, satisfaction that a solution of the vexed question of Indian medical standards, applicable to the whole of British India, should be practically envisaged by the government of India and that the responsibility for maintaining these standards, especially in relation to their extra-Indian aspects, should be assumed by a central Indian body. The council counts with confidence on the speedy establishment of a central board for India comparable with the medical boards or councils of other parts of the empire, to which it can refer for authoritative information on all questions of qualifications and standards. The council has received communications from India suggesting that, pending the establishment of the all-India Council, the degrees granted by the universities of Bombay and Rangoon should be recognized, but it has come to the conclusion that this would not be expedient or, indeed, just until the question can be dealt with as a whole, under conditions that would justify the council's guarantee of their sufficiency.

Experience of Birth Control Clinics

A meeting of medical officers of thirteen birth control clinics, who brought answers to a questionnaire previously circulated, relating to the failure of contraceptive methods, pathologic conditions, and hemorrhages observed in patients who had followed contraceptive methods for six months or more, was held in London. The information obtained was based on 6,322 cases. Among these there were 685 failures to prevent pregnancy, but of these only 95 were unaccountable; i. e., failure occurred though the prescribed technic had been properly carried out. The remaining 590 failures were traced to causes such as incomplete following of instructions, lapses from use of the method, deterioration of or faulty appliance, or other causes. In addition there was a group of 267 women who found the method impracticable for various reasons, such as esthetic dislike or discomfort to themselves or their husbands. An important observation was the entire absence of harmful results from following the instructions. The one case of pathologic effects occurred in a woman who wore the pessary continuously day and night whether there was any need or not. Only fifty complaints had been made by husbands. They mainly concerned the feeling of the anterior rim of the pessary and irritation of the penis by the lactic acid.

Accidents in Aviation

In the house of commons the undersecretary of state for air said, in reply to a question, that in the royal air force the number of deaths due to flying this year was sixty-two, an increase over last year's figure but practically the average for the same period in the preceding five years, when much less flying was done. The important point was the proportion of fatal accidents to the amount of flying done. For the period January-October, 1930, this is considerably lower than for any period from 1921 onward. A downward movement had thus been maintained, though not at a uniform rate. Of the sixty-two persons killed this year, thirty-five were in aircraft not fitted with slots or with slots not in operation, while fifty-four were supplied with parachutes. As regards safety devices, constant attention was given to the whole subject of the best means of improving the safety of flying and to the development of any devices that will do this. As a result there had been a progressive increase in the safety of flying.

Dame Mary Scharlieb is Dead

The death of Dame Mary Scharlieb, D.B.E., LL.D., M.D., M.S., at an advanced age removes a remarkable woman who entered the profession in middle life from humanitarian motives and became a skilful surgeon and the leader of her sex in the medical sphere. Mary Ann Suncomb Bird was born in 1845 near London. In 1865 she married a barrister, Mr. Scharlieb, and soon afterward accompanied him to Madras, where he practiced. She bore three children and helped her husband in the publication of law journals. She learned of the suffering of Hindu and Mohammedan women in childbirth because of the purdah system, which prevented aid from medical men. She was so affected that she determined to assist them by becoming a nurse at the lying-in hospital in Madras. She soon found that this was not enough and she entered with three other women the Madras Medical College, graduating in 1878. She went to England for further instruction, joining the London School of Medicine for Women, and in 1882 took the M.B. degree of the University of London with honors. She also attended a postgraduate course at Vienna. Returning to India in 1883, she was appointed lecturer on midwifery and gynecology at the Madras Medical College and accomplished a long cherished scheme to found a hospital for women. By 1887 the work had so told on her health that she had to return to England. In London she was appointed surgeon to the New Hospital for Women and subsequently was elected gynecologist to the Royal Free Hospital, being the first woman to hold a position on the visiting staff of a general hospital. She carried on a large consulting practice. She contributed the article on "Innocent Tumors of the Uterus" to the Encyclopaedia Medica and wrote on such subjects as "Welfare of the Expectant Mother," "How to Enlighten Children," and "Straight Talks to Women."

PARIS

(From Our Regular Correspondent)

Nov. 19, 1930.

The Congress of Otorhinolaryngology

The French Congress of Otorhinolaryngology met recently at Paris, at the Faculté de médecine, under the chairmanship of Dr. Caboche. The session was devoted to research on infection of the tonsils. The first official paper, presented by Worms and Le Mée, dealt with the problem of tonsillar foci viewed as the source of secondary infection. Acute articular rheumatism and chronic infectious rheumatism, bronchopulmonary disorders in children, and even appendicitis, may be the consequences of an infection due to a latent tonsillar focus, not to speak of possibly mycoses, tuberculosis and even cancer. The most interesting feature of the paper was Dr. Le Mée's description of the method he employs to discover experimentally the latent foci—what he terms "the tonsillar test." In applying massage, cupping or diathermy to the tonsil, a marked leukopenia is often observed, determined by the enumeration of the leukocytes in the blood before and after the maneuver—at the end of a quarter of an hour, an hour and a half and three hours and a half after the latter. The conclusion is that tonsillectomy is indicated whenever infectious disorders can be proved to be associated with a latent tonsillar focus. The second paper, that of Jacques of Nancy and J. Molinié of Marseilles, took up the indications and the technic of tonsillectomy; their conclusion is frankly in favor of total extra-

capsular tonsillectomy. The nature of the discussion that followed revealed the advocates of total tonsillectomy and those who regard the tonsil as a useful organ that cannot be removed, other than partially, without doing damage to the organism. The most frank defender of the latter opinion was Professor Moure of Bordeaux, who stated that, thus far, his patients who had been treated according to the French method were in good health. A number of nonofficial communications were presented. Mr. Rendu of Lyons declared that local anesthesia was perfectly applicable to children, in spite of opinions expressed to the contrary. Mr. Dandin-Clavaud of Dunkirk recommended a procedure for the evacuation of the tonsils after electrocoagulation. Mr. Proby of Lyons spoke in favor of the Sluder-Ballenger method of tonsillectomy. Rebattu and Charachon of Lyons gave the results of their research on the bacteriology of the tonsil. Professor Canestro of Gênes discussed the value of periarterial sympathectomy in the treatment of pain in tuberculous laryngitis. During the congress, Dr. Chevalier Jackson of Philadelphia gave a lecture on esophagoscopy and bronchoscopy. In connection with the congress, a commemorative bust of Dr. Lermoyez was set up in the Hôpital St. Antoine, in the service that he founded and of which he was for a long time the director. The officers elected for the ensuing year were: president, Dr. Gault, Dijon; vice president, Dr. Hautant, Paris. The chief topic on the program will be: "The Indications and the Technic of Bronchoscopy." The official paper will be presented by André Bloch and Soulas.

International Congress of Orthopedic Surgery

A new international association, founded last year, held recently in Paris its first session. The first International Congress of Orthopedic Surgery convened under the chairmanship of Sir Robert Jones of Liverpool, assisted by Mr. Gocht of Berlin and Mr. Putti of Bologna. Twelve countries sent delegates. The first topic was the "Treatment of Congenital Luxation of the Hip After the Age of Fifteen" (papers by Professor Kreuz of Berlin, Dr. Dickson of Kansas City, Mr. H. A. T. Fairbanks of London, and Professor Putti). The second topic on the program was "Wrist Fracture" (papers by Dr. Albert Mouchet of Paris and Dr. Murk Jansen). Professors Ombrédanne and Mathieu performed several operations. The next meeting of the society will be held at London in 1933. The elected officers are: Mr. Nové-Josserand of Lyons, president; Mr. Murk Jansen, Leyden, vice president; Mr. Delchef of Brussels, general secretary; Mr. Maffei of Brussels, treasurer. The chief topic on the program will be "The Articular Mechanism in the Treatment of Coxalgia."

The International Professional Association of Physicians

The season of congresses, which comprised the month of October and part of the month of November, has come to a close in Paris. One of the last conventions was that of the general council of the Association professionnelle internationale des médecins. The previous session was held in Berlin. The fifth assembly was held in Paris in October, in the Hôtel de la conféderation des syndicats médicaux, under the chairmanship of Dr. Rystedt, national correspondent of Sweden, assisted by the general secretary of the association, Dr. F. Decourt, national correspondent for France. Of the twenty-nine countries that are adherents of the association, seventeen were represented by their national correspondents, all of them presidents or secretaries of their national professional group; these were: Austria, Belgium, Bulgaria, Denmark, Danzig, France, Germany, Great Britain, Hungary, Jugoslavia, Latvia, Luxemburg, Netherlands, Norway, Poland, Sweden and Switzerland. The chief topics on the program were: "Organization of the Anti-tuberculosis Crusade in the Various Countries," Dr. Decourt, France; "Representation of the Medical Profession in Governmental and Regional Organizations," Dr. Cox, Great Britain; "Insurance and Charitable Aid in the Medical Profession for the Physician and His Family," Dr. Schaeftgen (Luxemburg). In addition, the representatives of each country gave an account of the present state of health insurance in their own country. Dr. Decourt then discussed the question of the practical collaboration of the Association professionnelle internationale des médecins with the Confédération internationale des travailleurs intellectuels. Following the presentation of the subject by Mr. Gallie, general secretary of the confederation, the collaboration was unanimously agreed on. The assembly decided that the inquiries of the association for 1931 shall deal with the following two questions: "Health Insurance in 1931 in the Various Countries"; "The Organization of the Crusade Against Venereal Disease in the Various Countries." The next session of the general council of the association will be held in Budapest in 1931, under the chairmanship of Dr. Narbeshuber (Austria).

Diplomas Issued by the Faculties of Medicine

During the school year ended last July, the faculties of medicine of France issued doctor diplomas in medicine to the number of 1,172, the distribution of which among the several faculties is as follows:

Faculties of Medicine	Government Diplomas	University Diplomas	Total
Algiers	23	...	23
Beirut (Syria)	18	...	18
Bordeaux	151	5	156
Lille	50	1	51
Lyons	128	10	138
Marseilles	3	...	3
Montpellier	72	17	89
Nancy	39	4	43
Paris	477	71	548
Strasbourg	35	8	43
Toulouse	56	4	60
	1,052	120	1,172

It is announced also that the number of new students enrolled in the Faculté de médecine has increased still further, in spite of the circular advocating retrenchment, sent by the medical syndicates to the administrations of the lycées, or secondary schools. In the Paris faculty of medicine there are, this year, 6,072 enrolled, 4,095 of whom are French and 1,977 are foreigners, or an increase of 96 Frenchmen and 221 foreigners over last year.

American Aid for Establishments in France

A delegation from the United States called recently on the prefect of the Seine and informed him of a gift of one million dollars made to the city of Paris for the erection of a clinic for the treatment of diseases of the mouth, teeth and throat, where children in the public schools will receive free treatment up to the age of 16. The establishment will resemble that erected in Rochester, N. Y. Similar institutions will be erected in Rome and in London.

The Hôpital Stell, founded at Rueil, near Paris, by Mr. Edward Tuck, has been greatly enlarged as the result of an additional large donation received from the founder. Until her death, Mrs. Edward Tuck devoted much of her time and energy to this hospital, which was originally a private institution but which her husband donated to the department of Seine-et-Oise, together with a perpetual income to assure its adequate functioning. With the aid of the new donation, the hospital has been able to double its bed capacity, which was previously twenty-seven. It is now supplied with the most modern equipment. The inauguration of the new pavilions was the occasion of an official ceremony, at which the prefect of the department presided.

A Rockefeller institute has recently been established at Montpellier for the study of undulant fever.

ITALY

(From Our Regular Correspondent)

Oct. 15, 1930.

International Conference on Tuberculosis

At the seventh International Conference on Tuberculosis, held in Oslo, Italy was represented by a delegation comprising Prof. Raffaele Paolucci of the University of Bari, chairman, and Senator Maragliano of Genoa and Professor Morelli, deputy, director of the Clinica di tisiologica in Rome.

VACCINATION AGAINST TUBERCULOSIS

Professor Maragliano, who presented an official paper on preventive vaccination against tuberculosis, affirmed that vaccination to protect man against infection with the Koch bacillus is possible, and that it was first accomplished in Italy thirty years ago. Numerous types of vaccine have been proposed but the two most used are the French B C G vaccine and the Italian vaccine consisting of killed bacilli. The B C G vaccine has been applied to more than 250,000 children and has given results that, for the time being at least, must be regarded as evidence of its immunizing potency. The untoward results observed recently in Germany do not justify adverse criticism of the vaccine itself. The Italian vaccine has been in use for many years and has given encouraging results, as regards both its immunizing potency and its absolute harmlessness. It is being used more and more extensively in Italy. It should be admitted that there are many different antituberculosis vaccines; one should not overemphasize one type.

Professor Calmette recognized the fact that to Maragliano belongs the merit of having conceived the idea of preventive vaccination against tuberculosis and for having put it into practical execution, but he insisted on the view that, in order to obtain an effective defense, the presence of living bacilli is needed.

In reply, Maragliano brought out that the B C G vaccine has a limited and short life when inoculated into the human organism and that, as a matter of fact, one is dealing finally, in this case as well, with killed bacilli.

THORACOPLASTY

Professor Carpi of Milan presented an official communication on thoracoplasty. The speaker explained the new conceptions of elective pulmonary collapse, which have made possible the application of simultaneous bilateral pneumothorax, and which in the field of surgery justify interventions of a less extensive nature, such as partial thoracoplasty, apicolysis and phrenicotomy. Professor Malan of Turin reported a series of thirty cases of tuberculosis in which he performed a thoracoplastic operation, at first by the Wilms method and later by the Sauerbruch method. In the first cases in which he operated, general anesthesia was, if only indirectly, a frequent cause of death; the use of local anesthesia led to better results. Thoracoplasty may be recommended to patients when, after a period of sanatorium treatment, pneumothorax is inapplicable or phrenicotomy is adjudged insufficient. Contraindications are found in a gradual improvement in general health, an evolutional exudative process, a heart lacking resistance, a focus of infection in the opposite lung, and visceral tuberculosis. Certain rebellious cases of hemoptysis constitute a frank indication for thoracoplasty. However, before one proceeds with this grave intervention, therapeutic pneumothorax should always be tried first.

The Medical Convention at Bari

Physicians of various regions of southern Italy held recently a convention at Bari. The chairman, Prof. Ermanno Fioretti, described to the conventionists the activities of the Sanità pubblica italiana and the nature of the principal improvements. The sanitary work has been notably decentralized in recent years and many duties have been transferred from the ministry to the provinces, such as the supervision of the laboratories of hygiene and prophylaxis, the antituberculosis services, the general administration of quinine, and the antirabies treatment. Special courses of treatment are given to build up a defense against avoidable infectious diseases. For the promotion of odontologic studies, a six-year course has been organized at the University of Rome. Insurance against tuberculosis is now required of all classes of workmen. It applies to more than eight million workmen. The number of tuberculous patients at present is about 80,000. The cost of sanatorium aid is $26,250,000, in addition to the annual expenditure of $15,750,000 for the army. For protection against cancer, diagnostic and therapeutic centers have been established. Also courses of practical instruction for a specialized medical personnel have been organized. Numerous other provisions have been made for the protection of public health. Professor Quarante of Bari asked that special insurance measures be created for the benefit of physicians who are serving in institutions that admit tuberculous patients. The next regional convention of physicians will be held at Venice, for the benefit of the health officers of the Tre Venezie.

Antidiphtheria Vaccination

The minister of the interior has issued instructions to the prefects providing for a more intense and better organized prophylactic action against diphtheria infection to take the form of vaccination with anatoxin. The public health service has pointed out that in certain provinces the number of children vaccinated is small, owing to insufficient publicity on the part of the health officers. Vaccination is not obligatory, but the need of it, in the opinion of the minister, should be brought to the attention of the public.

The New Public Health Institute in Rome

The erection of the new Istituto di sanità pubblica in Rome, in the vicinity of the Policlinico, by the Italian government, toward which the Rockefeller Foundation made a large contribution, was recently begun. The institute will be under the direct control of the public health service and will have functions entirely distinct from those of the university institutes of hygiene. Its chief purpose will be the creation of a school for the education and training of sanitary personnel; it will serve as an aid to the public health service in the country in general, in the provinces and in the communes. The present laboratories of the public health service and of the Scuola superiore di malariologia will be reorganized, with new equipment, and will be located in the new institute.

CAPE TOWN

(From Our Regular Correspondent)

Nov. 8, 1930.

Mentally Defective Persons in the Union of South Africa

The investigation of the incidence of mental defectiveness, initiated in 1915 by Dr. J. M. Moll of Pretoria, has been carried on with comparatively little enthusiasm, since his death, which robbed South Africa of an earnest investigator. Educated in the school of Winckler, whose first assistant he had been for many years, Moll came to this country ill with pulmonary phthisis. Like others, he found health in the uplands of the Karroo and accepted an assistantship at a government hospital for the insane, where for years he engaged in routine administrative work. In 1915 he started practice as a specialist in mental diseases at Johannesburg, and the Transvaal education department gave him a roving commission to investigate the extent of mental defectiveness in the schools. His first report, in 1917, showed that in the Transvaal schools there was an average of 0.8 per cent of mentally defective children, a percentage that agreed fairly closely with the average percentage of 1 in 300 which he made for the whole white population. Since Moll's death, from Bright's disease, in 1920, the tendency

has been to entrust much of the work of determining mental values to psychologists, whose evaluations are often vitiated by obvious defects of a physical nature that could be demonstrated in the children examined. In one case a lay examiner recorded a proportion of 7.4 mentally defective children, but on further investigation it was found that 76 per cent of the children suffered from chronic malaria, had a high fatigue index, and were for the most part unilingual and did not understand the tests used. Similar mistakes are frequently made in testing natives. More recent investigations appear to show that the aboriginal Bantu has an average mental quotient not far inferior to that of the average South African of white parentage, and that the percentage of mental defectives in native schools is certainly not higher than it is in European schools. At present an investigation is being made into the mental quotients of poor white children, but the work is not being done by a team comprising a psychiatrist, a psychologist and a pediatrician, and the results will probably not be of greater value than those published more than ten years ago by Moll.

Public attention has been drawn to mental deficiency by the discussion of the advantages of sterilization of the unfit. There is increasing juvenile criminality in the Union, and in these days of financial depression many taxpayers believe that too much is being paid for prison and police service. For all that the proposal to introduce legislation, on the American model, to enable the manifestly antisocial and unfit human derelicts to be sterilized, has so far found little favor with the general public. At present such sterilization is a crime, and legal opinion is unanimous that even consent on the part of the patient cannot make it justifiable. The local Branch of the Medical Association of South Africa had a combined meeting with the bar at which this matter was discussed. There has been a strong movement to induce the government to support a bill to legalize sterilization under proper precautions, but it seems clear that public opinion is not ready for such a step.

Racial Admixtures

One of the most interesting investigations that have been made during the past few years in this country has been completed by a scientist who in the course of a busy practice as a pathologist and bacteriologist, who incidentally has to prepare his own culture mediums and do practically everything single handed in his private laboratory, finds time to devote attention to purely scientific questions. This is an investigation into the blood groups of the South African Dutch, undertaken by Dr. A. Pijper of Pretoria. His results have been published in the Proceedings of the Koninklijke Akademie van Wetenschappen te Amsterdam (**32,** number 9, 1929). Some time ago he published, in the Transactions of the Royal Society of South Africa (**18,** part 4) a preliminary investigation which showed that the aboriginal Bantu have a blood index slightly higher than that of the American Negro. The work of Henderson and Lewis (THE JOURNAL, Oct. 21, 1922, p. 1422) stimulated him to undertake similar research here. So far as the Bantu are concerned he found that their blood index was 1.3. Previous work by Harvey Pirie, who had examined a small number of mine natives, had given a slightly higher index, while Mueller, working with West African natives, and Bruynoghe and Walravens, working with Belgian Congo natives had all found a blood index below 0.9. These figures seem to establish the fact that the west African Negroes have an index below that now found in their descendants in America, whose index is given as 1.3, and that the South African Bantu has even a slightly higher index. Dr. Pijper remarks: "Apart from a few historical curiosities there is no evidence at all that there ever has been an infusion of white blood into the Bantu. . . . The Bantu are the only native race of Africa of which we know that it has such a curiously high index. . . . The current belief about the origin of the Bantu is that they are of Negro origin with perhaps a slight admixture of Hamitic blood. My figures of the distribution of the blood groups make such views untenable. Whatever may have been the exact index of this Hamitic blood, it will not have been much higher than 1.5. A large infusion of white blood with an index of at least 3 has only succeeded in raising the original Negro index of 0.8 to 1.3 in America. It is therefore inconceivable that a slight admixture of Hamitic blood with an index of about 1.5 would have raised the Negro index to 1.3. The facts definitely point the other way; the Bantu have to be looked upon as direct descendants of the Hamitic race, with perhaps a very slight admixture of Negro blood."

Dr. Pijper, working with 596 descendants of Dutch families, the ancestors of whom came into the country before 1795, found that the blood index among this group is lower than that of the English and Hollanders, approaches that of the French, and equals that of the population of Berlin. The distribution of the blood groups in the South African Dutch, he declares, is of the western European type. But that distribution as a whole differs widely from that of the Germans and makes the South African Dutch resemble much more the Hollanders and the French. He found a blood index of 2.9 in the selected group, with a rather low incidence of the A group and the B group incidence somewhat high.

BERLIN

(From Our Regular Correspondent)

Nov. 24, 1930.

The Infant Deaths in Lübeck

According to a recent announcement of the ministry of the interior, the investigations carried on by Prof. Ludwig Lange in the federal bureau of health have led to further results. The periodic fluctuations in the epidemiologic course of the cases have persisted. The total number of deaths to date is seventy-three, the last occurring November 4, after an interval of seven and a half weeks. The examination of the B C G cultures from Lübeck is about completed. Further research has confirmed that the B C G cultures implanted in Lübeck in firm culture mediums about the middle of March and during the second half of April, 1930, did not contain virulent tubercle bacilli. On the other hand, additional evidence has been secured to show that the culture of Deycke (implanted, April 17), which was derived from a guinea-pig inoculated with a supposedly pure B C G emulsion, was a culture of virulent human tubercle bacilli. Another culture, which was obtained from a guinea-pig inoculated with a further B C G emulsion (also supposed to be pure), showed likewise high virulence for guinea-pigs. The rabbit experiments are not yet completed. In the examination of the remnants of four different culture emulsions (vaccine material) used in Lübeck for the treatment of children and sent in to the federal bureau of health subsequent to the deaths of the first infants, the cultivation experiments with two of the vaccine remnants were negative. From the remnant of the third vaccine substance, which had been given out, February 26, a culture of tubercle bacilli highly virulent for guinea-pigs was grown. The experiments on rabbits are not yet completed. In the remnant of the fourth vaccine substance, given out at the end of April, only avirulent B C G bacilli and no virulent tubercle bacilli have been found. With the exception of two instances, cultures of human tubercle bacilli have been secured from portions of the organs of deceased infants obtained at necropsy and inoculated into guinea-pigs. One of the two exceptions concerned an infant who had died forty-seven days after the vaccination (but from another cause and not from progressive tuberculosis) and from whose organs a pure B C G culture had been grown, while the second exception was another infant who had died ninety-one days after the vaccination and from whose organs cultures were secured in which in all probability (the researches in this case are not quite completed)

likewise B C G cultures were involved. Moreover, no evidence has yet been obtained for the view that the morbific and fatal effects of so large a portion of the vaccine material administered to infants in Lübeck were due to a biologic transformation of the B C G cultures employed there. The final report of the investigating committee will be placed in the hands of the federal health council some time in November.

Opinions on the Working Capacity of Man at the Age of Thirty-Five

In taking up the discussion of the question as to whether or not the working capacity of man is diminished on reaching age 35, the *Deutsches Volksblatt*, published in Stuttgart, cited opinions of economic experts, parliamentary representatives and medical men. Prof. Fritz Strassmann of Berlin expressed himself as follows: "During my nearly forty years of activity as a medicolegalist, I have had occasion to issue many certificates concerning earning capacity, and my observations during that period do not lend the slightest support to the view that the working capacity of man undergoes a diminution by the time he reaches age 35." Dr. Grotjahn, occupant of a chair in social hygiene, gave this opinion: "That the physical capacity of a working human being on reaching age 35 is diminished to such an extent as to lessen his occupational fitness must be denied from both the medical and the hygienic point of view. There are few employments, such, for example, as that of the hard-coal miner, who works by artificial light and under the most disagreeable conditions, of which that might possibly be said. But even the coal miner does not usually begin to show a reduction of his physical capacity until about ten years later than the age mentioned. In the case of employees as a class, if they are in normal health, there is no reduction of physical capacity before the age of 60 is reached. The custom of many industrial establishments and commercial houses of giving absolute preference to young persons in selecting new employees is a regrettable lack of insight."

The Therapeutic Advantages of Seaside Resorts

At the session of the Deutsche Gesellschaft für Meeresheilkunde, which was held in Westerland auf Sylt, Miethke of Kiel referred in his paper to the fact that not only the milk of animals but also human milk, in the North Frisian Islands and on the coasts of the North and the Baltic seas, contain a much larger amount of iodine than in the regions of the interior, the excess amounting sometimes to 200 per cent of the normal amount. The drinking water likewise shows in places near the sea a higher iodine content. An exceptionally high percentage of iodine is found in the snow of the North Frisian Islands. In sea climates it is likely that the iodine content is therapeutically an important factor. Peat and moor in the vicinity of the coast contain large quantities of iodine, though the sands of the sea have very little. In regions near the sea, the eliminations of the kidneys and of the skin have been found to contain larger quantities of iodine than are found in the interior. These observations are important for the regional consideration of thyreotoxicoses.

Professor St. Engel of Dortmund spoke on "Maritime Medicine in Relation to the Diseases of Young Children." In the past there has been a tendency to neglect young children in connection with considerations pertaining to balneology. Infants, it is true, react slowly to sea climate. If young children are vasolabile or neurotic, their reactions in a maritime climate are unfavorable; otherwise they are good. Not many observations, however, have been made, for the reason that too few young children are sent to the seashore. The conditions of exudative diathesis in young children are best adapted for maritime treatment. In infancy exudative diathesis expresses itself more by its inflammatory nature; in young children more by its lymphatic manifestations, and in older children rather by its neurotic symptoms. Maritime treatment should, however, extend over a considerable period. Of children with rachitis, those who show a tendency to bronchial catarrh are most likely to receive benefit from a sojourn at the seaside. Children with asthma are benefited by climatic treatment at the seaside. The most important disease in young children in which seaside treatment is beneficial is tuberculosis, which expresses itself in the form of tuberculosis of the bronchial glands, meningitis and miliary tuberculosis. There is no specific treatment for these forms of tuberculosis, but the sea-bath treatment shows good results. It is not difficult to discover whether or not a child is tuberculous, if the Pirquet procedure is employed; it is, however, difficult to ascertain which cases are active, especially as the roentgenologic diagnosis and the erythrocyte sedimentatation test cannot be depended on.

Professor van der Reis of Danzig spoke on "Maritime Medicine and the Diseases of Advanced Age." Sea climates in their effects may be classed among the nonspecific remedies that produce a changed reactivity and are of great therapeutic value. The customary classification does not make sufficient allowances for the wide therapeutic differences between the climate that characterizes the beach, the dunes that lie back of the beach and the woods that border on the sea. Within a narrow area there is thus a transition from a stimulative climate to a relatively unstimulative one. The sojourn at the seaside acts through an ensemble of effects, including those of the pure atmosphere and the sea-baths. The chief point of attack of the stimulative effects of a stay on the seashore is the skin, which, when influenced, acts on the whole organism. The physiologic effects include changes in the capillary reactions of the skin, an increase of oxygen consumption, influence exerted on the mineral metabolism, and action on the blood and the circulatory organs and the functioning of the respiratory tracts and digestive organs. The indications for seaside treatment in internal diseases comprise above all "common colds" and diseases of the respiratory organs. A precondition is a careful selection of cases and precise observation of the susceptibility to stimulation and the effects of stimulation. Secondary anemias are favorably influenced by the seaside climate but pernicious anemia is not favorably affected. Heart patients may go to the seashore only in a compensated stage; the same rule applies to arteriosclerosis and high blood pressure. The assertion that neurotic patients must never go to the seaside is unfounded; but a careful selection of cases is requisite. Especial value attaches to the treatment of subacute rheumatic disorders and the interval stage, at the seaside. There is an urgent need of the creation of more therapeutic institutions by the sea.

Dr. F. Kirchberg of Berlin discussed the subject of "Gymnastic Exercises at the Seaside." The results secured with various forms of sport and gymnastic exercises in connection with sea-baths are excellent. They apply more particularly to an improvement in respiration and to an expansion of the chest. The hardening effects of gymnastics in the nude, by the seaside, are stressed. The hardening process makes possible a sojourn by the sea during cold weather—under certain conditions, even in the middle of winter. Gymnastic exercises serve to strengthen the musculature, whereas lying on the beach promotes an ontake of fat.

Marriages

EDWARD J. VAN LIERE to Miss Alice Evelyn Hartley, both of Morgantown, W. Va., in Uniontown, Pa., November 10.

JOHN W. JAMES, Saginaw, Mich., to Miss Helen Loraine Collaton of Toronto, Ont., Canada, November 5.

FRED LORD VARNEY, Monson, Maine, to Miss Laura J. Best of West Baldwin, November 27.

LEROY GOODMAN to Miss Marie Mulvey, both of Yukon, Okla., November 9.

Deaths

William Bedford Craig, Denver; St. Louis Medical College, 1875; Bellevue Hospital Medical College, New York, 1876; member of the Colorado State Medical Society, and the American College of Surgeons; emeritus professor of surgery, University of Colorado School of Medicine; on the staffs of St. Luke's Hospital, St. Joseph's Hospital, Mercy Hospital, Presbyterian Hospital, Children's Hospital, St. Anthony's Hospital and the Denver General Hospital; aged 75; died, November 27.

Robert **Courtenay Loving** ✠ Colonel, U. S. Army, retired, Philadelphia; Medico-Chirurgical College of Philadelphia, 1902; entered the army as an assistant surgeon in 1903 and was promoted through the various grades to that of lieutenant colonel in 1917; served during the World War; retired for disability in line of duty in 1922, with the rank of lieutenant colonel; promoted colonel retired, under the Act of June 21, 1930; aged 52; died, November 7.

John **Welch Boyce** ✠ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1892; served during the World War; member of the American College of Physicians; aged 59; associate editor of the *Pittsburgh Medical Bulletin;* on the staffs of the Pittsburgh City Home and Hospitals, Mayview, Western Pennsylvania Hospital, Eye and Ear Hospital and the Southside Hospital, where he died, November 23, as the result of a gangrenous gallbladder.

Oliver Edward Janney, Baltimore; University of Maryland School of Medicine, Baltimore, 1881; Hahnemann Medical College of Philadelphia, 1882; member of the Medical and Chirurgical Faculty of Maryland; at one time professor of practice and clinical pediatrics in the Southern Homeopathic Medical College; formerly on the staff of the Southern Homeopathic Hospital; aged 74; died, November 17, of pneumonia.

Blair **Dabney Taylor** ✠ Colonel, U. S. Army, retired, Atlanta, Ga.; University of Virginia Department of Medicine, Charlottesville, 1869; Medical Department of the University of the City of New York, 1870; entered the army as an assistant surgeon in 1875; advanced through the various grades to that of colonel in 1908; retired in 1911 at his own request after thirty years' service; aged 82; died, October 29.

Myron **Everett Fisher** ✠ Delevan, N. Y.; University of Buffalo School of Medicine, 1894; served during the World War; formerly member of the state legislature; member of the county board of health; for many years health officer of Delevan and Yorkshire; aged 65; died, November 29, as the result of injuries received in an automobile accident.

Marie **S. Schmidt** ✠ Sheridan, Ill.; Northwestern University Woman's Medical School, Chicago, 1900; at one time clinical assistant in gynecology, Rush Medical College, Chicago; formerly on the staff of the Mary Thompson Hospital, Chicago; aged 67; died, November 15, of heart disease.

George Swan Mooney, Yonkers, N. Y.; Medical Department of Columbia College, New York, 1895; member of the Medical Society of the State of New York and the American College of Surgeons; on the staff of St. Joseph's Hospital; aged 74; died, October 17, of heart disease.

Gove Saulsbury Harrington, New York; Hahnemann Medical College and Hospital of Philadelphia, 1892; member of the American College of Surgeons; on the staffs of the Metropolitan and Broad Street hospitals; aged 63; died, November 25, of heart disease.

Edward A. Crokat, San Diego, Calif.; University of Manitoba Faculty of Medicine, Winnipeg, Man., Canada, 1894; member of the California Medical Association; aged 64; died, October 20, in the Quintard Hospital, of myocarditis and valvular heart disease.

Lurin Patrick Macklin, St. Louis; Washington University School of Medicine, St. Louis, 1909; member of the Missouri State Medical Association; member of the board of education; aged 43; died, October 15, of cerebral embolism and chronic endocarditis.

Frank Gerald Bishop, Ebensburg, Pa.; Temple University School of Medicine, Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; aged 60; died, November 7, in Johnstown, of an injury received in an automobile accident.

Harry Charles Johnson ✠ Logansport, Ind.; Chicago Homeopathic Medical College, 1904; served during the World War; president and for many years member of the city board of health; aged 50; died, November 30, of pernicious anemia.

Joseph Martin Bennett, Providence, R. I.; University of Pennsylvania School of Medicine, Philadelphia, 1892; member of the Rhode Island Medical Society; formerly chairman of the state board of health; aged 66; died, in November.

Alexander R. Morton, Morton, Pa.; Jefferson Medical College of Philadelphia, 1886; past president of the Delaware County Medical Society; aged 67; died, November 8, in the Lankenau Hospital, Philadelphia, of gastric ulcer.

Cornelius S. Franckle, Millville, N. J.; College of Physicians and Surgeons, Baltimore, 1900; member of the Medical Society of New Jersey; aged 52; died, November 1, in the Jefferson Hospital, Philadelphia, of heart disease.

Allan Walker Urmson, New Castle, Pa.; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; on the staff of the New Castle Hospital; aged 59; died, November 12.

Pugh Ulpian Brown, Troy, Ala.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; member of the Medical Association of the State of Alabama; aged 61; died, November 24, in a hospital at Mobile.

Mary Evelyn D'Aloret Johnston, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1917; on the staff of the Mountain Sanatorium; aged 38; died, September 23, in the Toronto General Hospital.

James John Benson, West New York, N. J.; Baltimore University School of Medicine, 1899; member of the Medical Society of New Jersey; formerly member of the school board; aged 50; died, November 9, of heart disease.

August Elof Johnson ✠ Minneapolis; Medical Department of Hamline University, Minneapolis, 1906; aged 61; died, October 19, on the S. S. *Europa* while returning to the United States from Sweden, of coronary sclerosis.

Thomas James McGovern, Braintree, Mass.; Tufts College Medical School, Boston, 1927; member of the Massachusetts Medical Society; on the staff of the Norfolk County Hospital; aged 34; died, November 13.

Herman Harvey Albers ✠ Allenton, Wis.; Rush Medical College, Chicago, 1891; past president of the Washington-Ozaukee Counties Medical Society; aged 64; died suddenly, October 22, of cerebral hemorrhage.

Robert W. Alton, Portland, Mich.; University of Michigan Medical School, Ann Arbor, 1878; member of the Michigan State Medical Society; aged 76; died, November 9, in a hospital in Ann Arbor, of pneumonia.

George Otto Cosby, Elizabethtown, Ind.; Medical College of Ohio; Cincinnati, 1881; member of the Indiana State Medical Association; aged 77; died, November 9, in the Methodist Episcopal Hospital, Indianapolis.

Charles Wayman Wassmann, Bellaire, Ohio; Jefferson Medical College of Philadelphia, 1923; member of the Ohio State Medical Association; aged 31; died, October 30, in a sanatorium at Asheville, N. C.

Henry Fuller Curtis ✠ Somerville, Mass.; Harvard University Medical School, Boston, 1891; member of the school board; on the staff of the Somerville Hospital; aged 66; died, October 29, in Framingham.

George Newton Mealy, Newton Falls, Ohio; Cleveland College of Physicians and Surgeons, Medical Department of the University of Wooster, 1882; aged 85; died suddenly, November 28, in Cleveland.

Daniel Leo McCormick, Newark, N. J.; Dartmouth Medical School, Hanover, N. H., 1896; member of the Medical Society of New Jersey; aged 56; was killed, November 27, in an automobile accident.

William Colin ✠ New York; Medical Department of the University of the City of New York, 1898; on the staff of the Harlem Hospital; aged 54; died suddenly, November 22, of cerebral hemorrhage.

Joseph Armstrong Nevin ✠ Jersey City, N. J.; New York Homeopathic Medical College and Hospital, 1906; medical inspector for the city public schools; aged 51; died, November 15, of heart disease.

Harold Francis Hope Eberts, Westmount, Que., Canada; McGill University Faculty of Medicine, Montreal, 1915; aged 40; was found dead in November, in his garage, of carbon monoxide poisoning.

Manley Alfred Davis, Gadsden, Ala.; Birmingham Medical College, 1911; member of the Medical Association of the

State of Alabama; aged 45; died, November 1, in a local hospital, of pneumonia.

Curtis Oliver Falk ✠ Eureka, Calif.; Cooper Medical College, San Francisco, 1897; member of the American College of Surgeons; aged 54; died, October 19, in St. Joseph's Hospital, of sarcoma of the right femur and pneumonia.

Nathan C. Wallace, Dover, Pa.; Jefferson Medical College of Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; aged 75; died, October 12, of injuries received in an automobile accident.

Charles Francis Duchein, Baton Rouge, La.; University of Nashville (Tenn.) Medical Department, 1899; member of the Louisiana State Medical Society; aged 55; died, October 28, of pneumonia.

Walter Scott Brainerd, Haverhill, Mass.; University of Vermont College of Medicine, Burlington, 1883; member of the Massachusetts Medical Society; aged 71; died, November 13, of heart disease.

John B. Leffingwell, Bradenton, Fla.; St. Louis Medical College, 1880; member of the Florida Medical Association; formerly member of the county board of health; aged 76; died, November 19.

Maxwell J. Davis, Mansfield, Ohio; Ohio Medical University, Columbus, 1897; member of the Ohio State Medical Association; formerly city health commissioner; aged 67; died, November 26.

Robert O. Chambers, Centerton, Ark.; Homeopathic Medical College of Missouri, St. Louis, 1877; Barnes Medical College, St. Louis, 1894; aged 77; died, October 30, of chronic endocarditis.

Francis James Conroy ✠ Grand Rapids, Mich.; University of Illinois College of Medicine, Chicago, 1910; served during the World War; aged 45; died, in November, of heart disease.

Frank Pierce Gardner ✠ Seattle; Western Pennsylvania Medical College, Pittsburgh, 1896; served during the World War; aged 61; died, September 29, of cerebral hemorrhage.

George H. Boehmer ✠ Sandusky, Ohio; Jefferson Medical College of Philadelphia, 1897; on the staff of the Good Samaritan Hospital; aged 58; died, November 27, of heart disease.

Robley Dunglison Blount ✠ Valparaiso, Ind.; Medical College of Indiana, Indianapolis, 1889; served during the World War; aged 62; died suddenly, November 13, of heart disease.

John Allison Darrow, Erie, Pa.; Syracuse University School of Medicine, 1910; member of the Medical Society of the State of Pennsylvania; aged 48; died, July 22, of pneumonia.

Nelson Clifton Bissell, Dos Palos, Calif.; Cooper Medical College, San Francisco, 1904; aged 60; died, November 1, in the Letterman Hospital, San Francisco, of arteriosclerosis.

Elgin Kossuth Leake, Collierville, Tenn.; University of Virginia Department of Medicine, Charlottesville, 1872; for many years mayor of Collierville; aged 80; died, November 11.

Robert Marvin Bennett ✠ Amarillo, Texas; Kentucky University Medical Department, Louisville, 1903; aged 56; died, October 10, in St. Luke's Hospital, Kansas City, Mo.

Henry F. Risch ✠ Brooklyn; Bellevue Hospital Medical College, New York, 1879; aged 78; died, November 26, in the United Israel-Zion Hospital, of cerebral hemorrhage.

Frank Benjamin Golley ✠ Milwaukee; University of Michigan Medical School, Ann Arbor, 1878; Bellevue Hospital Medical College, 1879; aged 74; died, November 30.

Francis Asbury Webb, Calvert, Ala.; Medical College of Alabama, Mobile, 1881; member of the Medical Association of the State of Alabama; aged 70; died, October 22.

John M. Stone, Laredo, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; member of the Missouri State Medical Association; aged 81; died, September 18.

Francis Homer Blackman, Geneva, Ill.; Chicago Medical College, 1870; aged 84; died, November 8, at the Community Hospital, of myocarditis and acute prostatitis.

Franklin Pierce Boatner, Potts Camp, Miss.; University of Louisville (Ky.) School of Medicine, 1891; aged 78; died, September 20, in a hospital in New Albany.

Lyston H. D. Pierce, St. Petersburg, Fla.; Starling Medical College, Columbus, 1888; member of the Florida Medical Association; aged 69; died, November 4.

William Joseph Holland ✠ Malden, Mass.; Georgetown University School of Medicine, Washington, D. C., 1903; aged 56; died, November 20, of pneumonia.

Nicholas J. Shields ✠ San Luis Obispo, Calif.; Baltimore Medical College, 1898; on the staff of the Mountain View Hospital; aged 55; died, October 10.

Bert G. Jewett, Portland, Maine; Baltimore University School of Medicine, 1896; member of the Maine Medical Association; aged 57; died, September 4.

La Forest Almond Shattuck, Leesburg, Fla.; Eclectic Medical College of the City of New York, 1869; aged 84; died, July 6, in Ocala, of heart disease.

Theodore John Bertrand Meury, Saranac Lake, N. Y.; University and Bellevue Hospital Medical College, New York, 1912; aged 43; died, November 9.

Andrew Norris, Centerville, Tenn.; University of Nashville Medical Department, 1860; Confederate veteran; aged 92; died, November 10, in Nashville.

John Joseph O'Sullivan, New York; Medical Department of Columbia College, New York, 1894; aged 65; died suddenly, November 28, of heart disease.

Mary Leola Carrico ✠ Danville, Ill.; Rush Medical College, Chicago, 1916; aged 37; was found dead in bed, November 16, of cerebral hemorrhage.

John E. Toole, Bainbridge, Ga.; College of Physicians and Surgeons, Baltimore, 1889; formerly mayor of Bainbridge; aged 62; died, in November.

Thomas Buchanan Sadler, Corsicana, Texas; Chattanooga (Tenn.) Medical College, 1895; aged 61; died, November 13, of heart disease.

P. C. Chadwick, Rockwood, Tenn.; Chattanooga Medical College, 1909; aged 44; died, October 13, of a self-inflicted wound of the throat.

George Crist Jenkins, Curwensville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1879; aged 77; died in November.

Joseph Delahunt, Marathon, Iowa; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1889; aged 70; died in November.

Henry S. Herman, Hagerstown, Md.; University of Maryland School of Medicine, Baltimore, 1876; aged 80; died, November 14.

William Royal Blackshear, Chireno, Texas; Beaumont Hospital Medical College, St. Louis, 1888; aged 80; died, November 5.

Joseph Edward Bundy, Sheldon, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1883; aged 75; died, November 9.

Lonzo Virgle Smith ✠ Alhambra, Calif.; Willamette University Medical Department, Salem, Ore., 1906; aged 49; died, October 30.

George Lake Blanchard ✠ Los Angeles; Creighton University School of Medicine, Omaha, 1902; aged 53; died, August 2.

John D. Tieken ✠ Piper City, Ill.; St. Louis Medical College, 1879; aged 76; died suddenly, November 19, of heart disease.

Clarence Christopher Duchscherer ✠ Buffalo; University of Buffalo School of Medicine, 1903; aged 49; died, October 16.

Henry J. Von Gremp, Dixon, Mo.; Missouri Medical College, St. Louis, 1887; aged 67; was killed, August 15, by a train.

Ora Addison Chappelle ✠ Elgin, Ill.; Rush Medical College, Chicago, 1892; also a dentist; aged 68; died, October 26.

Isaac Walter Bard, Cleveland; Cleveland Medical College, 1874; aged 77; died, November 5, in St. John's Hospital.

Matthew A. Layton, Detroit; Detroit College of Medicine, 1897; aged 67; died, October 31, of cerebral hemorrhage.

William Dallas Richards, Dayton, Ky.; Miami Medical College, Cincinnati, 1889; aged 80; died, November 13.

William T. Booth, Denison, Texas; Hospital College of Medicine, Louisville, 1875; aged 74; died, November 9.

John Page Tourner, Bloomington, Ind. (licensed, Indiana, 1897); aged 76; died, November 10, of heart disease.

Ward B. Short, Riverside, Calif.; Chicago Homeopathic Medical College, 1898; aged 62; died, October 13.

Isaiah T. Epps, La Grange, Ga.; Leonard Medical School, Raleigh, N. C., 1896; aged 62; died, October 30.

Carl E. Pfister, New York (licensed, New York, 1895); aged 70; died, October 31, in Berlin, Germany.

Bureau of Investigation

PHYSICIANS PROTECTIVE CASUALTY COMPANY

A Mutual Assessment Company Selling Accident and Sickness Insurance

During the past year, THE JOURNAL has received a number of inquiries relative to the Physicians Protective Casualty Company of Chicago. Especially have inquiries come in recently from Indiana, where this company seems to be rather actively engaged. Typical of the letters received are the following:

To the Editor:—I have been solicited by the Physicians Protective Casualty Company of Chicago for a noncancelable health and accident policy. I would appreciate any information you can give me relative to the company. J. R. M., M.D., Chicago.

To the Editor:—I have held a policy from the Physicians Protective Casualty Company of Chicago for the last two years. In the earlier part of May, I claimed disability for the first time. A blank was mailed and was filed by the attending physician, as per request. I have written to them repeatedly, asking why they did not answer. Up to this minute my requests are ignored. D. A., M.D., Brooklyn.

To the Editor:—I am writing an inquiry concerning the Physicians Protective Casualty Company of your city. Any information you can give me regarding them, as to their being an authentic company, will be greatly appreciated by me. H. M. S., Indiana.

From such information as we have been able to get, it appears that the Physicians Protective Casualty Company was organized in October, 1928, and chartered under the laws of the State of Illinois. It claims to have complied with all the requirements in that state pertaining to mutual assessment companies under the legal reserve plan. The names of the officers and directors have been given as:

PRESIDENT: M. T. Rogers, M.D., Moline, Ill.
SECRETARY AND TREASURER: J. W. Stamper, Chicago.
VICE-PRESIDENT: Carleton E. Gardner, osteopath and chiropractor, Macomb, Ill.
DIRECTORS: William E. Washburn, M.D., Kewanee, Ill.; D. Peter Wiens, M.D., Peoria, Ill.; Charles M. Atkinson, M.D., Havana, Ill.; William A. Steele, M.D., Havana, Ill.; William H. Braham, D.D.S., Canton, Ill.

In this connection, it is worth calling attention to the fact that M. T. Rogers, the president, is, apparently, Jennie Maude Thomas Rogers of Moline. We find Dr. Rogers' name in the files of the Bureau of Investigation as "Vice-President" of a so-called Medical and Legal Industrial Bureau of Moline, Ill. From letters received from physicians, it appears that this concern was brought into existence for the purpose of putting out an alleged directory of medical men that, according to the representatives of the Moline concern, would give such medical men as were listed therein preference in industrial insurance work and also act as a guide for insurance companies in selecting their examiners! Physicians, according to our correspondents, who wished to be listed in the proposed "directory" were to be charged sums ranging from $10 to $25. An Iowa physician, who wrote in regarding the scheme, stated that it occurred to him that this might be a "branch of business racketeering." Whether the Medical and Legal Industrial Bureau has ever collected any money from physicians and, if so, whether it has ever published a directory, we do not know. We have heard nothing about the scheme for more than a year and a half.

The moving spirit of the Physicians Protective Casualty Company seems to be the secretary and treasurer, J. W., or John W., or J. Wesley Stamper, who is not a physician but is said to have been formerly a book salesman.

Dr. Rogers and Mr. Stamper were president and treasurer, respectively, of an earlier concern known as the Medical Protective Association, Inc., which, according to a letter sent out over Stamper's name in April, 1927, sold a malpractice-defense service to the following group:

"Our membership principally comprises the following: Chiropractors, Osteopaths, Dentists, Physicians and Surgeons (not members of A. M. A.), Chiropodists, and etc."

This Medical Protective Association should not be confused with a high-grade and reputable insurance company of an almost exactly similar name that had been in existence for years before the Rogers-Stamper concern was organized. The *National Underwriter* for July 28, 1917, was authority for the statement that the certificate granted by the Secretary of State of Michigan to the Medical Protective Association had been canceled at the request of the State Insurance Department.

The Physicians Protective Casualty Company does not sell malpractice defense but accident and health insurance. The *Pocket Register of Accident Insurance* for 1930, published by the Spectator Company of New York and Chicago, shows the condition and business of American stock and mutual accident insurance companies throughout the United States. The issue dealing with the period ending January 1, 1930, states that the Physicians Protective Casualty Company of 105 West Adams Street, Chicago, paid for claims during 1929 only $2,522, while they used $24,871 for agents' commissions and expenses of management. This would indicate that during that period the company was paying out $10 for expenses to each $1 used for benefits!

A Brooklyn physician, whose letter to THE JOURNAL is the second of those published above, reported, as will be noted, that although he had held a policy in the Physicians Protective Casualty Company for some time, he was unable to get any attention paid to his claim for disability that he filed with the company last spring. His letters to the company were ignored. Finally, the Bureau of Investigation wrote to the Physicians Protective Casualty Company asking for an explanation of the concern's attitude in the case. The Bureau's letter was written November 4, 1930. On November 6, 1930, the doctor was sent a letter by the Physicians Protective Casualty Company with a check for $60, representing the amount claimed. The excuse given to the doctor was that, at the time his claim was filed, there was a complete change of personnel in the company's office, that his claim was marked paid, but, by oversight no check was issued. The oversight continued, apparently, from May, 1930, until November, 1930, when the Bureau of Investigation wrote to the company asking for an explanation and stating that THE JOURNAL expected to publish something on the subject in an early issue.

Those physicians who are prone to take out insurance mainly on the basis of low premium charges, should bear in mind that when dealing with a mutual assessment company, there is always the possibility of their being called on to make up deficits that may be incurred either through errors of management or heavy claims. Just what limits there are to the assessments that the Physicians Protective Casualty Company can call for is not altogether plain from the company's policy. The statement in the policy, "In case of emergency, this policy is subject to such premium payments as may be required by the company," would seem to imply that there is no fixed limit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

TESTS OF STERILITY

To the Editor:—Mrs. A. P. married at 21, became pregnant, and miscarried because of a severe fall. She became pregnant again and had a normal pregnancy, with normal delivery of a living child. There were two more pregnancies with miscarriages for no known cause. She was divorced from her husband, had an operation, so she was told, for the removal of the right tube and ovary, appendix, and also a ventral suspension. She married a second time, became violently ill two months after marriage, an Australian surgeon did an exploratory laparotomy on her, and told her that he found a four weeks' tubal pregnancy in the left tube. He told her that he removed the mass, swabbed out the tube, and sewed her up without drainage. She made an uneventful recovery, and the surgeon told her that there was no reason why she should not become pregnant again. In fact, he gave her a signed statement to the effect that the tube was uninjured. This was four years ago, and there has as yet been no further pregnancy. Both the patient and her husband are most anxious to have children and want to know if there is any possibility of another pregnancy. The patient's menses are regular and painless. She leads a normal life and is quite healthy. Is it possible to reopen the tube? If so, who is competent to do the operation?
M.D., Georgia.

ANSWER.—The operation on the only tube which this patient had does not necessarily imply obstruction of this tube and sterility. There are cases on record in which an ovum has been removed from the only tube a patient had and this has

been followed by a pregnancy. In some instances the pregnancy subsequent to the operation again developed in the tube that was operated on, but in other instances the fertilized ova were implanted normally in the uterine cavity and full-term children were born. When an ovum is removed from a tube and the tube is left, there is a distinct danger of the recurrence of a pregnancy in this tube and this should be explained to the patient and her husband. This danger is most likely greater than the repetition of an ectopic gestation in the opposite tube in women who have both tubes.

In the present case, to determine whether or not the tube is patent, a Rubin tubal patency test should be performed. If the tube is found to be impermeable to gas, iodized oil should be injected and a roentgenogram taken to determine the site of the obstruction. It is assumed that bimanual examination reveals a normal condition other than the absence of the right tube and ovary. If abnormalities, especially evidences of inflammation, are found, the Rubin test should not be performed. In a fair proportion of cases, pregnancy follows the demonstration of tubal patency by the Rubin test. If an obstruction is found, a plastic operation on the tube may be performed. This can be done by any capable gynecologist, but the patient and her husband should be told that the chances for a uterine pregnancy are certainly no greater than one in five. If the tubal obstruction is due to sealing off of the tubal mucosa, the chances for a pregnancy are much less than in the cases in which the tube is closed by factors outside the tubal lumen.

SCARLET FEVER OR EXFOLIATIVE DERMATITIS

To the Editor:—A boy, aged 6, whom I saw on the third day of illness, had been taken ill with vomiting, diarrhea and fever. He had a rash of one day's duration, typical of scarlatina, a raspberry tongue, a reddened throat and palpable cervical glands. He had been treated with scarlet fever serum seventeen months before when scarlet fever had been diagnosed. In about eight hours he had developed a temperature of 106 F., clearing by the following morning, sixteen hours. The mother says that on several occasions he has developed a similar condition of the tongue and a rash, to subside in about a day with subsidence of the fever. The same symptoms occurred this time. Does this appear to be a simple diffuse erythema, or is it possible that the boy is a scarlet fever carrier, developing mild scarlet fever because of his previous serum treatment? Kindly omit name.

M.D., Connecticut.

ANSWER.—The administration of scarlet fever antitoxin, therapeutically, for the treatment of scarlet fever already developed in a patient, does not prevent the development of immunity to the disease. Second attacks of scarlet fever may occur whether or not the first attack is treated with antitoxin, but the frequently recurring rashes in this instance are not attacks of scarlet fever. If desquamation follows the erythematous eruption, it would suggest exfoliative dermatitis.

MINERAL OIL ABSORPTION OF VITAMINS

To the Editor:—I have been told that recent experiments with mineral oils show that these oils absorb and carry off the fat-soluble vitamins. So far, I have not been able to locate any published reports of these experiments and wonder whether you could perhaps throw some light on the subject for me.

MISS P. A. CLARK, New York.

ANSWER.—The problem to which our correspondent refers was referred to in an editorial on "Some Recent Observations on Fat-soluble Vitamins" (THE JOURNAL, Aug. 27, 1927, p. 694). There have been only few experimental investigations dealing directly with the problem. These have been published as follows:

Burrows, M. T., and Farr, W. K.: *Proc. Soc. Exper. Biol. & Med.* **24:** 719 (April) 1927.

Dutcher, R. A.; Ely, J. O., and Honeywell, H. E.: *Proc. Soc. Exper. Biol. & Med.* **24:** 953 (June) 1927.

Ely, J. O.; Honeywell, H. E., and Dutcher, R. A.: *Pennsylvania State Coll. Agr. Exper. Sta.-Bull.* 243, 5, 1929.

Hawk, P. B.; Levine, H.; Stucky, C. J., and Oser, B. L.: Abstract of paper read before the American Chemical Society, Minneapolis, 1929.

Moness, E., and Christiansen, W. G.: *J. Am. Pharm. A.* **18:** 997, 1929.

Indirect references to the subject will be found in the following papers:

Collison, D. L.; Hume, E. M.; Smedley-Maclean, I., and Smith, H. H.: *Biochem. J.* **23:** 637, 1929.

MacDonald, M. B.; Andes, E. C., and Briggs, F. A.: *J. Home Econ.* **22:** 213, 1930.

Marcus, J. K.: British patent 289798, Chem. Abstr. **23:** 933, 1929.

Mellanby, John: *J. Physiol.* **64:** 33 (Dec. 29) 1927.

Moore, T.: *Biochem. J.* **23:** 1272, 1929.

The evidence is still somewhat unconvincing, so that further experimental investigation is urgently desired before any final pronouncements on this subject are justified.

TREATMENT OF ALCOHOLISM

To the Editor:—Is there any drug or other agent that will relieve one of an almost overpowering desire for alcohol? I have a patient who pleads with me for such a remedy. These attacks are periodic, but there remains always some desire. With the help of bromides and capsicum I have so far managed to tide him over. However, the situation is far from ideal. Any suggestions would be appreciated. Please omit name and town.

M.D., New Jersey.

ANSWER.—The solution of the alcoholic habit does not rest on drugs alone; they play the minor part in the treatment. Each alcoholic addict uses alcohol for a reason or cause that is sufficient to himself and the cure depends on the removal when possible of the internal and external causes for which the alcoholism is merely an expression.

The craving for narcotics is not purely a physical need; it is chiefly mental and if the physician can give his patient a mental "kick" that is bigger than the idea or desire for the alcohol he may be successful. It might be advisable to try the following:

Atropine sulphate	0.13 Gm.	(2 grains)
Strychnine sulphate	0.5 Gm.	(8 grains)
Water...sufficient to make 90	cc.	(3 ounces)

One drop three times a day after meals, increasing one drop every twenty-four hours as follows:

First day:	morning, 1 drop;	noon, 1 drop;	night, 1 drop
Second day:	morning, 2 drops;	noon, 1 drop;	night, 1 drop
Third day:	morning, 2 drops;	noon, 2 drops;	night, 1 drop
Fourth day:	morning, 2 drops;	noon, 2 drops;	night, 2 drops
Fifth day:	morning, 3 drops;	noon, 2 drops;	night, 2 drops

The dosage is increased to ten or more drops three times a day until symptoms of atropine poisoning appear; then it is reduced five drops and continued for three weeks more.

The patient should come to the office daily for observation for the first three weeks, and then two or three times a week. If during this time or later an acute desire to drink appears, 3 mg. (one-twentieth grain) of apomorphine should be administered hypodermically every three or four hours until the desire ceases.

SYPHILIS IN PUERPERAL PATIENT

To the Editor:—Two weeks ago an apparently healthy child was born in a local hospital from an apparently healthy mother. The cord Wassermann reaction was 3 + with noncholesterolized antigen and 4 + with cholesterolized antigen. The Wassermann reaction taken on the mother was 4 + with both antigens about a week after delivery. The mother is nursing the baby and both are apparently doing well. Please give the proper treatment for this case. How soon can mercury inunctions be used on the baby? Please omit name and address.

M.D., New York.

ANSWER.—A 4 plus Wassermann reaction obtained in a puerperal patient signifies syphilis in nearly every instance. A baby born of a syphilitic mother may nurse its own mother. Treatment of both mother and child should be begun soon after birth. The child may be given mercury rubs every second day and also intramuscular injections of neoarsphenamine or other arsenical preparations once a week for a few weeks. For the first few weeks the mother should be given iodide by mouth and intramuscular injections of bismuth, arsenic or mercury preparations. After she has been up and around for a while, intravenous arsenic therapy may be instituted. It is inadvisable to give intravenous therapy, especially arsenic, too soon after childbirth because puerperal women are more prone to have bad reactions from this therapy than are other individuals.

IMPORTANCE OF AIR VENT IN BATH ROOM FROM HYGIENIC POINT OF VIEW

To the Editor:—The city plumbing regulations demand a vent attached to the drain of sinks, bathtubs and toilets; this vent must run to the roof of the building and its purpose is to allow the escape of air and "sewer gas" from the drain pipes. Has it ever been shown that a vent is necessary from the health standpoint, provided the drain has a competent water trap? If a wash basin in a physician's office should be installed without a vent, and used occasionally for the disposal of urine, would it give rise to insanitary conditions or obnoxious odors? Please omit name.

M.D., New Jersey.

ANSWER.—There is no evidence that sewer gas is a definite health hazard causing any specific disease. It used to be stated that sore throats, diphtheria and typhoid might be spread in this way, but the evidence produced to support these claims is worthless. If continual living under obnoxious conditions directly affects the health, to that extent a vent can be regarded as a minor health factor. It is possible that plumbing installed without a vent might give rise to obnoxious odors. A vent is necessary not so much for the purpose of allowing the escape of sewer odors to the roof as to make it impossible for the "traps" that are standard parts of wash basins, bath tubs and water closets to be siphoned out to the point at which the water in such traps no longer seals them.

NEW NAMES FOR OLD UNACCEPTABLE PROPRIETARY PRODUCTS

To the Editor:—I have received the enclosed letter and literature from the Southwest Medical Supply Company regarding use of their products in the treatment of syphilis, rheumatism, gonorrhea and asthma. Kindly send me any information you have regarding these products: "Onolin," "Aritine," "Amazine" and "Lesol."

M.D., California.

ANSWER.—Those who noted a recent current comment in THE JOURNAL (The Horovitz Proteins and Lipoids Again, THE JOURNAL, Dec. 21, 1929, p. 1975) will recognize in the products named by our correspondent the ill concealed names of Gonolin, Arthritine, Asthmazine and Luesol. Here is a group of the various names under which, as pointed out in the comment, the Horovitz proteins and lipoids are marketed by various firms. The advertising circulars that are sent for one group are the same (except for the name of the product) as those sent for the other group, the genealogy of which has been traced from the original Horovitz mixtures, through the Merrell Proteogens, to the present products of the Lipoidal Laboratories, Inc. The advertising for each is a farrago of pseudoscience which will take in only those who have not learned to examine critically the evidence and methods by which more or less astute exploiters attempt to gain medical credence for secret and probably worthless preparations. It is no doubt only a question of time until the discredited Horovitz protein substances and lipoids will break out with new names and possibly a somewhat different line of pseudoscientific advertising copy. Said a famous Frenchman, "The more it changes, the more it is the same thing."

VITAMINS IN CANNED PRODUCTS

To the Editor:—I should like to have the opinion of your Committee on Foods as to the difference of value in vitamins between the following fresh and canned foods of the fall: tomatoes, beets and carrots. What is the value in vitamins of Carnation condensed cream, grapefruit juice, and Karo syrups?

MRS. O. H. GOOGE, Atlanta, Ga.

ANSWER.—Tomatoes, beets, carrots and grapefruit, prepared by the so-called former open kettle process, lose considerable of the original vitamin values. This process, however, is now largely replaced by more modern methods which destroy little of vitamins A and B (complex) and even in larger measure permit preservation of the heat labile vitamin C. The vitamins of acid fruits, such as tomatoes, are especially well preserved in canning.

Condensed milks, as a whole, contain practically all the vitamin A and B content of the original milk. Vitamin C is in lessened amounts.

Karo syrups do not provide vitamins.

VITAMINS IN CANNED CITRUS FRUITS

To the Editor:—Can you tell me in what manner canned citrus fruits are preserved and whether they contain the vitamins of the fresh fruit?

S. A. MUNFORD, M.D., Clifton Springs, N. Y.

ANSWER.—The only canned citrus fruit products that have been submitted to the Committee on Foods and accepted are Whitefield Genuine Orange Juice and Whitefield Genuine Grapefruit Juice. The announcement of acceptance of the Grapefruit product appears in THE JOURNAL, December 13.

The vitamin content of the original orange juice is almost completely preserved in the final product. This preservation is accomplished by low pasteurization temperatures and by processing in an atmosphere of carbon dioxide. The juice is packed under partial vacuum, which is maintained in the containers by special capping.

FLAT FEET

To the Editor:—Should a child at 16 months of age receive treatment for flat feet? This child was seen by me, August 6, and is normal. There are no signs of rickets, the knees are straight, the child walked at 13 months, but both inner malleoli come very near the floor. Would you advise any special treatment? Please do not publish name.

M.D., Iowa.

ANSWER.—The child probably has flat feet of a hereditary or familial type. This condition is more often found to be transmitted through the paternal side. Accessory scaphoids are often found in this type of condition. Treatment should be instituted immediately. This should include high laced shoes with round toes and rigid shanks. The heels should be longer and higher along the inner borders than on the outer. There should be a flexible inner support for the longitudinal arch. Longitudinal arch exercises should be given to increase the power of the supporting structures of the longitudinal arches. Massage in the corrected position may be beneficial. If this does not produce correction, repeated plaster casts should be applied; while these casts are being worn, the child should be allowed to walk.

PLURAL OF LEPTOSPIRA

To the Editor:—Will you state the plural of the word *Leptospira?* I have seen "leptospiras," "leptospirae," and "leptospira" used by different medical writers. Which is correct? Please omit name and address.

M.B., India.

ANSWER.—Certain words have English plurals when used as common nouns and Latin or Greek plurals when used in scientific names. For example:

English	Latin
amebas	*Amoebae dysenteriae*
ancylostomas	*Ancylostomata duodenalia*
spirochetes	*Spirochaetae pallidae*
tenias	*Taeniae saginatae*
uncinarias	*Uncinariae americanae*

Therefore it would be the usage of the American Medical Association press to use the form "leptospiras" or *"Leptospirae"* according to the context.

READING OF DIASTOLIC PRESSURE

To the Editor:—Will you please explain the causes of a diastolic pressure of 0 with a systolic 120? Please omit name.

M.D., Michigan.

ANSWER.—A diastolic pressure of zero may be experienced if the diastolic pressure is read at the complete disappearance of the sound. It is better to consider the diastolic pressure to be the reading found just at the beginning of the fourth phase; i. e., just as the sound begins to get more dull and begins to pass into the fifth phase, where the sound disappears altogether. In this way, readings of zero are more rarely experienced. A low diastolic pressure may occur in aortic insufficiency and with any condition in which there is a peripheral vasodilatation.

VITAMIN E

To the Editor:—Kindly inform me which products contain vitamin E that could be fed to infants.

LESLIE Y. KATONA, M.D., Flushing, N. Y.

ANSWER.—Vitamin E is a fat-soluble principle occurring in muscles, fat, pancreas, spleen, liver, heart, hypophysis, placenta and other structures of animals. It is less abundant in the viscera, including the liver, than in muscle. Heart, spleen, brain, kidney and testes contain little E, whereas muscle and fat contain it in considerable amounts. Milk fat is a poor source. Cod liver oil is notably lacking in E. The seeds and green leaves from plants are good sources. Even dried lettuce and peas contain it. This vitamin is present in corn, oats and especially in wheat. The germ or embryo of the wheat in particular is an abundant source.

CALCAREOUS DEPOSIT IN PARA-URETHRAL GLAND

To the Editor:—August 15, a woman, aged 44, the mother of fourteen children, consulted me about some bladder trouble. On examination I noted a small tumor about the size of a small marble to the right just below the urethral opening. On palpation the tumor felt as if it contained calculi. I opened the tumor and found 100 stones about the size of a grape seed. No connection with the bladder could be demonstrated. The stones were dry and no urinary odor was present. Please give me your opinion as to the source of the stones.

HARRY H. BOLTON, JR., M.D., Pierce, W. Va.

ANSWER.—Deposits of calcareous material may occur anywhere in necrosing tissue. In the instance referred to, evidently the mucous lining of a para-urethral gland underwent necrobiosis as the result of some inflammatory process and the precipitation of the lime salts followed.

FOOT DROP

To the Editor:—I have a patient suffering from foot drop due to an injury to the knee, leg and ankle. Would there be any chance of this man's recovery of control of the foot if he underwent an operation?

J. R. STRINGHAM, M.D., Cheboygan, Mich.

ANSWER.—The injury is indefinite and should be stated more specifically to warrant a complete reply. No matter what the cause, a foot drop can usually be corrected; this may be possible by nonoperative orthopedic treatment, but surely by operation.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 12, 1931. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery, Ala.

ARIZONA: Phoenix, Jan. 6-7, 1931. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

COLORADO: Denver, Jan. 6, 1931. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

DIST. COLUMBIA: Basic Science, probably Dec. 28, 1930. Regular, Jan. 12, 1931. Washington, D. C. Sec., Dr. W. C. Fowler, District Bldg., Washington, D. C.

ILLINOIS: Chicago, Jan. 13-15, 1931. Supt., Mr. P. B. Johnson, Dept. of Registration and Education, Springfield, Ill.

MINNESOTA: Minneapolis, Jan. 6-7, 1931. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., Minneapolis, Minn. Regular, Minneapolis, Jan. 20-22, 1931. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., Minneapolis, Minn.

NEW YORK: Albany, New York City, Syracuse and Buffalo, Jan. 26-29, 1931. Chief, Mr. H. J. Hamilton, Albany, N. Y.

NORTH DAKOTA: Grand Forks, Jan. 6-9, 1931. Sec., Dr. G. N. Williamson, Grand Forks, N. D.

OREGON: Portland, Jan. 6-8, 1931. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland, Ore.

PENNSYLVANIA: Philadelphia, Jan. 6-10, 1931. Sec., Mr. C. D. Koch, Harrisburg, Pa.

RHODE ISLAND: Providence, Dec. 30-31, 1930. Dir., Mr. L. A. Round, Room 319 State Office Bldg., Providence, R. I.

WASHINGTON: Seattle, Basic Science, Jan. 8-9, 1931. Regular, Jan. 12-13, 1931. Dir., Mr. Charles Maybury, Olympia, Wash.

WISCONSIN: Madison, Jan. 13-15, 1931. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

WYOMING: Cheyenne, Feb. 2, 1931. Sec., Dr. W. H. Hassed. Capitol Bldg., Cheyenne, Wyo.

Porto Rico September Examination

Dr. Diego A. Biascoechea, secretary of the Board of Medical Examiners of Porto Rico, reports the written and practical examination held at San Juan, Sept. 2-13, 1930. The examination covered 16 subjects and included 75 questions. An average of 75 per cent was required to pass. Ten candidates were examined, 9 of whom passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1929)	86.7
George Washington University Medical School		(1930)	87.6
University of Georgia Medical Department		(1929)	78
University of Maryland School of Medicine		(1930)	84.8
Boston University School of Medicine		(1930)	81.8
Harvard University Medical School		(1929)	84.6
Columbia University College of Phys. and Surgs		(1930)	87.3
Jefferson Medical College		(1924)	85.1
University of Lausanne Faculty of Medicine		(1928)	81.3*

College	FAILED	Year Grad.	Per Cent
Chicago College of Medicine and Surgery		(1916)	51 †

* Verification of graduation in process.

† This candidate took the examination the first day, September 2, but did not reappear for the completion of the examination. He obtained a grade of 51 per cent in the first subject, Anatomy.

New Jersey June Examination

Dr. James McGuire, secretary of the Board of Medical Examiners of New Jersey, reports the written examination held at Trenton, June 17 and 18, 1930. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Eighty-six candidates were examined, 83 of whom passed and 3 failed; 1 withdrew. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1928) 80.5, (1929)		81.5
Georgetown University School of Med.	(1928) 80.8, (1929) 79.4, 79.5, 79.9, 80, 80, 81.3, 82.1, 83.2, 85.7, 86.7		78.6,
George Washington University Medical School	(1929) 82.9, 83.7, 88.2, 89	(1927)	82.3,
University of Maryland School of Medicine	(1929) 82.8, 83.6, 85.7		
Boston University School of Medicine		(1929)	80.5
Tufts College Medical School	(1929) 87.7, 88.8,		89.2
Long Island College Hospital		(1929)	78.5
Syracuse University College of Medicine		(1929)	81.8
Hahnemann Medical College of Pennsylvania	(1929) 82.1, 82.5, 82.8, 83, 83.7, 85.2, 87.5, 88.8		78.6,
Jefferson Med. College	(1929) 80.2, 80.7, 81.2, 83.6, 84.3, 86.3, 87.3,		88.7
Temple University School of Medicine	(1929) 80.8, 81.3, 82.7, 84.3,		84.7
University of Pennsylvania School of Medicine	(1928) (1929) 83.3, 83.7, 84.3, 84.6, 85.8, 88.6		83.2,
Medical College of Virginia		(1929)	78.5
Laval University Faculty of Medicine		(1928)	82.2
McGill University Faculty of Medicine		(1929)	82.6
Queen's University Faculty of Medicine		(1929)	80.3
University of Manitoba Faculty of Medicine		(1928)	90
University of Montreal Faculty of Medicine		(1925)	79.5
University of Toronto Faculty of Medicine	(1921) 76.4, (1928) 80.3	(1911)	79.5,
Catholic University of Louvain Faculty of Medicine		(1930)	75 *
Osteopaths	76.1, 76.1, 76.5, 76.6, 78.1, 79.4, 80.4, 81.2, 81.4, 81.7, 83.7, 84.5, 86.1, 86.4, 88.2		78.3,

College	FAILED	Year Grad.	Per Cent
Boston University School of Medicine		(1926)	72.7
University of Naples Faculty of Medicine		(1926)	59.2
Osteopaths			68.4

Dr. McGuire also reports 86 physicians and 4 osteopaths licensed through reciprocity with other states and 8 physicians by the endorsement of credentials, from Jan. 1 to July 14, 1930. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1929)	Maryland
Yale University School of Medicine		(1922)	Maine
Georgetown University School of Medicine	(1928, 2) (1929, 2) New York	(1922) (1927)	Dist. Colum.
George Washington University Medical School	(1928) Maryland, (1904) (1925) (1929) Dist. Colum.	(1927)	New York
Howard University School of Medicine		(1927) (1928, 3)	Dist. Colum.
Chicago College of Medicine and Surgery		(1913)	Iowa
University of Louisville School of Medicine	(1928) Kentucky	(1927)	New York
University of Maryland School of Medicine	(1921) (1929, 2) Maryland	(1929)	New York
Boston University School of Medicine		(1928, 2) (1929)	New York
Tufts College Medical School		(1929)	Mass.
University of Michigan Medical School		(1927) (1928, 2)	Michigan
University of Minnesota Medical School		(1919)	Minnesota
Bellevue Hospital Medical College		(1896) (1898)	New York
Columbia University College of Phys. and Surgs.	(1919) (1927, 2) (1928, 5) New York	(1914)	Penna.
Cornell University Medical School		(1916) (1927)	New York
Fordham University School of Medicine		(1918) (1921)	New York
Long Island College Hospital		(1928, 2) (1929)	New York
New York Homeopathic Medical College		(1929, 2)	New York
Syracuse University College of Medicine		(1928) (1929)	New York
University and Bellevue Hospital Medical College		(1927, 3)	New York
Eclectic Medical College, Cincinnati		(1925)	Ohio
Miami Medical College		(1906)	Ohio
University of Cincinnati College of Medicine		(1928)	Ohio
Hahnemann Medical College of Pennsylvania		(1928)	Penna.
Jefferson Medical College	(1921) Georgia, (1896) (1920) (1927) Pennsylvania	(1925) (1928)	N. Carolina
Medico-Chirurgical College of Philadelphia		(1915)	Penna.
Temple University School of Medicine		(1921) (1928, 2)	Penna.
University of Pennsylvania School of Medicine	(1927) (1928) Pennsylvania	(1929)	New York
Woman's Medical College of Pennsylvania		(1924)	Penna.
Meharry Medical College		(1923)	Ohio
Vanderbilt University School of Medicine	(1919) Pennsylvania	(1916)	New York
University of Texas School of Medicine		(1922)	Texas
University of Vermont College of Medicine		(1928)	Vermont
Medical College of Virginia		(1924)	Virginia
McGill University Faculty of Medicine		(1916)	Maine
University of Toronto Faculty of Medicine		(1924)	Penna.
University of Frankfort-on-Main Faculty of Medicine		(1920)*	Minnesota
University of Budapest Faculty of Medicine		(1908)*	W. Virginia
University of Naples Faculty of Medicine		(1922)	Texas
Osteopaths		(3) Missouri, (1)	New York

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Yale University School of Medicine		(1927)	N. B. M. Ex.
Columbia University College of Phys. and Surgs.		(1924, 2)	N. B. M. Ex.
Cornell University Medical School		(1924) (1928)	N. B. M. Ex.
University and Bellevue Hospital and Med. College		(1926)	N. B. M. Ex.
University of Oregon Medical School		(1922)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1920)	N. B. M. Ex.

In addition Dr. McGuire reports 28 physicians and 2 osteopaths that were licensed through reciprocity with other states, and 3 physicians licensed by the endorsement of credentials during November and December 1929. The following colleges were represented:

College	LICENSED BY RECIPROCITY IN 1929	Year Grad.	Reciprocity with
Georgetown University School of Medicine		(1926)	R. Island
Howard University School of Medicine		(1928)	Dist. Colum.
Tulane University of Louisiana School of Medicine		(1928)	New York
Boston University School of Medicine		(1906)	Maine
Tufts College Medical School		(1906)	Mass.
University of Michigan Medical School		(1926)	New York
St. Louis University School of Medicine		(1926)	Ohio
University of Nebraska College of Medicine		(1925)	Nebraska
Columbia Univ. College of Phys. and Surgs.		(1927) (1928)	New York
Cornell University Medical School		(1925)	New York
New York Homeopathic Medical College		(1928, 2)	New York
University and Bellevue Hosp. Med. Coll.		(1927, 2) (1928, 2)	New York
University of Cincinnati College of Medicine		(1923)	Penna.
Jefferson Medical College		(1911) (1926) (1928)	Penna.
Medico-Chirurgical College of Pennsylvania		(1909)	Penna.
Univ. of Pennsylvania School of Med.		(1895) (1924) (1926)	Penna.
University of Texas School of Medicine		(1926)	Texas
University of Toronto Faculty of Medicine		(1922)	New York
University of Budapest Faculty of Medicine		(1921)	Vermont
Osteopaths		(1) Maryland, (1)	Missouri

College	1929 ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Harvard University Medical School		(1927)	N. B. M. Ex.
Columbia University College of Phys. and Surgs.		(1927)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1923)	N. B. M. Ex.

* Verification or graduation in process.

Book Notices

ILLUSTRATED PRIMER ON FRACTURES. Prepared by the Cooperative Committee on Fractures under Auspices of Section on Surgery, General and Abdominal, and Section on Orthopedic Surgery in Cooperation with Department of Scientific Exhibit of the American Medical Association. Cloth. Price, $1. Pp. 55, with illustrations. Chicago: American Medical Association, 1930.

This consists of a series of line drawings representing certain standard procedures in fracture work, with the high points in each procedure represented by signs on the walls of the room in which the procedure is being carried out. Following each drawing is a concise text. The drawings are simple and clear and give definite ideas of the important points in each procedure. Though variations in fractures and roentgenograms are not considered, a few anatomic diagrams are introduced for each procedure and they are illuminating to the text. Most of the book goes straight to the point of how to do it, but a few timely warnings are given. Only the simplest methods of treatment with plaster and well known standard splints are shown. Methods of traction, transportation, reduction and the prevention of deformities are gone into simply and effectively. For the student and for the general practitioner who must treat an occasional fracture, the book is a valuable contribution. The diagrams are not beautiful but they are extremely clear. The book follows the demonstrations devised by the Fracture Committee of the American Medical Association and is practically a reproduction of these, necessarily lacking one important phase—the possibility of getting additional information from the demonstrator in charge of the booth. The book fulfils its purpose.

ERGEBNISSE DER SOZIALEN HYGIENE UND GESUNDHEITSFÜRSORGE. Band II. Herausgegeben von Professor Dr. A. Grotjahn, o. Professor der Sozialen Hygiene an der Universität Berlin, Professor Dr. L. Langstein, a. o. Professor der Kinderheilkunde an der Universität Berlin und Professor Dr. F. Rott, Privatdozent für Soziale Hygiene an der Universität Berlin. Paper. Price, 36 marks. Pp. 497, with 27 illustrations. Leipzig: Georg Thieme, 1930.

The second volume of this useful publication is worthy of its predecessors. It contains comprehensive discussions of such subjects as the relative influence of social environment and inheritance, the methods and value of periodic health examinations, the feeding and recreative facilities of school children, the epidemiology of poliomyelitis, tuberculosis mortality in England and Wales, the new German mortality tables, the specific male mortality as a means of measuring the mortality due to alcohol, and other topics of more or less general interest. As has been noted before in reviewing recent German summaries, some of the articles suffer because the authors have not, apparently, had access to other data than those in the German language. In the present volume this limited outlook is especially noticeable in the discussion of poliomyelitis, in which the extensive and fundamental work of Aycock and others in the United States receives scant consideration. The article on periodic health examinations, on the other hand, draws freely on the rich American data. Although of varying value for the American reader, nearly all the articles contain information and reveal points of view that will be of assistance to the reader able to supplement his knowledge from other sources.

NERVOUS INDIGESTION. By Walter C. Alvarez, M.D., Associate Professor of Medicine, University of Minnesota (The Mayo Foundation). Cloth. Price, $3.75. Pp. 297. New York: Paul B. Hoeber, Inc., 1930.

This monograph is the outgrowth of the author's contributions to medical periodic literature. It provides not only his own contributions in the field of research but also his clinical study. Indeed, the clinical phase represents at least half of the complete work. Each of the chapters is preceded by quotations from secular literature. Dr. Alvarez considers relationship of emotion to the digestive tract, types of indigestion, hints in regard to the taking of a history, the handling of a patient, the treatment of nervous indigestion, and some practical points about the physiology and innervation of the digestive tract. He concludes his book with a bibliography, and a chapter of suggestions for further reading. As is usual with volumes issuing from the Hoeber press, this book is pleasing from a typographic point of view, the type column makes for easy readability, the type itself is large, the side and center heads split up the text, and the text itself has in it the literary quality that one has come to associate with the Alvarez contributions. The author presents his cases so graphically that his language makes them visible. He is by way of being a practical psychologist who gets his results promptly rather than by the forever enduring methods of the modern psychoanalyst. It is doubtful whether patients with nervous indigestion can be cured of their complaints by reading books, but it seems likely that this volume would do much for such a patient; certainly the physician will want to know as much as the patient will know when he has finished reading it.

THE PSYCHOANALYSIS OF THE TOTAL PERSONALITY: THE APPLICATION OF FREUD'S THEORY OF THE EGO TO THE NEUROSES. By Franz Alexander, M.D. Authorized English translation by Bernard Glueck, M.D., and Bertram D. Lewin, M.D. With a prefatory note by A. A. Brill, M.D. Boards. Price, $3.50. Pp. 176. Washington, D. C.: Nervous and Mental Disease Publishing Company, 1930.

This volume begins with a foreword by Dr. Brill which traces the evolution of the freudian conception from its first announcement to the present time. Dr. Brill points out that the present volume deals with the development of the ego, its rôle in the neuroses and psychoses, and the basic instinct of the neuroses and perversions. The translators, in their preface, emphasize the practical character of this work and attempt to make clear the peculiar nomenclature with which the freudians surround their discussions. Finally, the author, in his introduction, reveals the fact that he is concerned primarily with the way in which the modern freudian psychology concerns itself with the total personality rather than with the instinct alone. The book consists of nine lectures which distinguish the various conceptions of the ego and the superego, leading to the conclusion that a neurosis represents a conflict between the ego and the instinctive needs. The narcisistic neurosis appears to be a struggle between the ego and the superego. This volume is obviously of more interest to the freudian, and to those who are concerned immediately with the freudian, than to the general reader. For the latter, it will be very slow going; moreover, comprehension will be difficult, and, in some instances, belief will be even more difficult. The freudian conception represents one of the greatest contributions of the twentieth century, but the day is still far distant for its application to general medical practice.

SERTSE I GRIPPOZNOE VOSPALENIE ZUBOV I MINDALIN. Dr. B. A. Egorov. [Heart and Influenza, Paradentitis and Tonsillitis. By Dr. B. A. Egorov.] Paper. Pp. 108, with illustrations. Moscow, 1930.

The author observed cases in which signs and changes of septic endocarditis remained stationary for long periods. Moreover, the intensity of functional changes did not correspond to that of organic changes. Palpitations, cardiac pains, suffocation and dyspnea were considerable, while the cardiac murmurs or occasional dilatation of the heart were insignificant. The third particular feature of the cases consisted in the presence of mental disturbances. Hypochondriasis, melancholia and depression were the signs of a mental reaction. There was a persisting fever. The patient's history pointed always to a sore throat or to influenza as the origin of the "endocarditis." The tonsils proved to be responsible for the fever; removal or cauterization of the tonsils was followed by lowering of the temperature. Further examination revealed that the cardiac phenomena simulating endocarditis were associated with irritation of a certain section of the sympathetic nervous system. The connection between a chronic infection of the tonsils and an irritation of the sympathetic cervical and thoracic ganglions is explained as follows: Inflammation of ganglions and of plexuses, mechanical compression of a sympathetic plexus by enlarged cervical glands, also functional hyperemia or ischemia of sympathetic ganglions are factors of irritation of the sympathetic nervous system. Viscerovisceral and axonal reflexes may accompany the vasomotor changes. Variations of blood pressure in vessels of the sympathetic nervous system may assume a certain rôle. Infection of the tonsils or of the periodontal tissues is a frequent cause. Other septic foci, as chronic sinusitis or chronic infection of Highmore's antrum are able to induce an analogous cardiac syndrome. In one

instance, the latter was caused by chronic tuberculosis of the ear and of the temporal bone. Other forms of an infectious vegetative syndrome may be observed, but the cardiotonsillar form is the most usual. The septic focus in the tonsils was frequently associated with that in the periodontal tissues. In rare cases, septic foci were found in the paranasal sinuses and in the adnexa. Egorov stresses that an acute influenza may result in chronic inflammatory processes, as "grippal sore throat," "glippal periodontitis" or "chronic influenza."

ANATOMY. By George W. Corner, M.D., Professor of Anatomy in the University of Rochester. Clio Medica, a series of primers in the history of medicine. Cloth. Price, $1.50. Pp. 82, with 8 illustrations. New York: Paul B. Hoeber, Inc., 1930.

MEDICINE IN THE BRITISH ISLES. By Sir D'Arcy Power, K.B.E., F.R.C.S., Honorary Librarian at the Royal College of Surgeons of England. Clio Medica, a series of primers in the history of medicine. Cloth. Price, $1.50. Pp. 84. New York: Paul B. Hoeber, Inc., 1930.

These two contributions will be greeted with pleasure by all those who love medical history for itself alone or who want their medical history in an easily readable, compact form. The books are essentially mónographs of some twenty thousand words. That they do not deal entirely with subjects that are obsolete is apparent by the book by Power, which provides not only a history of the development of medicine in the British Isles but also a picture of the practice of medicine in Great Britain today. Moreover, this, as well as the other book, is supplemented by a bibliography that means much to those who care to look into the matter further.

REMINISCENCES OF GEORGE MARTIN KOBER, M.D., LL.D., EMERITUS DEAN AND PROFESSOR OF HYGIENE OF THE SCHOOL OF MEDICINE AND MEMBER OF THE BOARD OF REGENTS, GEORGETOWN UNIVERSITY, WASHINGTON, D. C. (In Two Volumes.) Volume I. Cloth. Price, $5, per set. Pp. 403, with illustrations. Washington, D. C.: Kober Foundation of Georgetown University, 1930.

Dr. George Martin Kober celebrated his seventieth birthday in 1920. He now presents the first volume of his autobiography, which covers his early life and reminiscenses of Germany, his arrival in the United States, and his relationship to the United States Army through the campaign of General Howard, about 1878. The book is full of interesting personal material; however, the detail is so overwhelming as to make the work forbidding to all except those who have had personal relations or acquaintanceship with its author. Volume I covers a period when the United States and medicine in the United States were undergoing growing pains. No doubt the subsequent volumes will carry the author through the adolescence and maturity of the advancement of medical education and bacterial investigation, in which he has played a considerable part.

THE PHYSIOLOGY OF THE VESTIBULAR APPARATUS. By Mario Camis, Director of the Institute of Physiology of the Royal University of Parma. Translated and annotated by R. S. Creed, B.M., B.Ch., M.A. Cloth. Price, $7.50. Pp. 310, with 65 illustrations. Oxford: Clarendon Press, 1920.

This book is the result of much research. After a history of the early work on the physiology of the labyrinth, the anatomic details of the vestibular apparatus and its nervous connections are described in detail. The next chapter deals with operative methods for the study of the labyrinth of animals together with the effect of partial and complete destruction of the labyrinth. Following the experimental stimulation of the labyrinth, the author considers the labyrinth as an organ of the sense of space and then as an organ of reflex function. The relations of the labyrinth to the eye and ocular nystagmus, as well as the analysis of the labyrinthine reflexes are given quite fully. While most of the work deals with animal experimentation, the last chapter is devoted to the examination of the labyrinthine reflexes in man, the adequate stimulus for the sensory organs of the labyrinth and the nervous connections of the vestibular apparatus. This is a scholarly monograph and deserves close study for it contains innumerable important matters, some of which are not as yet entirely clear from either the physiologic or the clinical point of view. The illustrations are good and the translators have rendered the original Italian into excellent English. This work will serve as an excellent reference book for otologists, physiologists and others who are interested in the structure and function of the static apparatus.

THE PATHOLOGY OF DIABETES MELLITUS. By Shields Warren, M.D., Pathologist of the New England Deaconess Hospital, Boston. With a foreword by Elliott P. Joslin, M.D. Cloth. Price, $3.75 net. Pp. 212, with 85 illustrations. Philadelphia: Lea & Febiger, 1930.

In this book, which is based on the study of 300 cases, Warren again brings into focus the various phases of the pathology of diabetes. A consideration of the insular hypothesis is followed by the description of the histology of the normal pancreas. The lesions of the pancreas seen in diabetes are then described and compared with lesions observed in the pancreas of nondiabetic individuals. A conclusion at this point is important. "It is striking that practically any lesion found in the pancreas of diabetic individuals, either involving the island tissue, the acinar tissue or both, can be duplicated in the pancreas of nondiabetics." Only the greater frequency of such lesions in diabetic patients justifies their consideration as presumptive evidence of diabetes, and, without information of the previous clinical course or without studies of the glycogen distribution in other organs, the diagnosis of diabetes cannot be made. The complications of diabetes receive attention, especially those associated with or resulting from arteriosclerosis. The importance of arteriosclerosis is evident from the frequency of deaths resulting from it, 72 of the 300 cases. The rôle of infection is equally important, this being the cause of death in 126 cases; syphilis played a minor part. Only two of the deaths were due to syphilis and not a pancreas in the series showed changes attributable to this cause. Tuberculosis accounted for only thirteen deaths. Diabetes in children, hemochromatosis, insulin resistance and hyperinsulinism are discussed, as well as the association with diabetes of other endocrine disorders. This leads to a consideration of theories as to etiology. In the series of 300 diabetic necropsies, the pancreas was available for detailed histologic study in 259. Of these, 69 were normal so far as could be determined and no lesions of other organs were sufficient to explain the existence of diabetes. This again raises the puzzling question of the nature of the pathologic functioning in these relatively frequent instances of diabetes without apparent cause. The book is well written and beautifully illustrated. It is authoritative and should be made available in medical libraries for every student of this disease.

GENERATIONS OF ADAM. By A. L. Wolbarst, M.D. Cloth. Price, $3.50. Pp. 355. New York: Newland Press, 1930.

Dr. Wolbarst is by specialty a urologist. The evolution of medical practice has largely removed the control of the mental aspects of sex life from the urologist to the psychiatrist and the psychoanalyst, although the most advanced urologists are keeping themselves abreast of the changing points of view. There are, of course, in addition, the persons who emphasize the glandular and constitutional aspects of sexual disturbances. This volume by Dr. Wolbarst is addressed to a lay rather than a medical audience, and it bears the endorsement of both physiologists and psychoanalysts. It answers, for those who are likely to propound such questions, the usual inquiries concerning the development of sex, puberty and the problems of masturbation and the sex urge in maturity. The years of practice of the author have caused him to take what might be called an exceedingly modern view of the entire situation. The Victorians will find little in his book to please them. His literary style is easily comprehended, and his directness is refreshing.

A TEXT-BOOK OF HISTOLOGY. By Harvey Ernest Jordan, A.M., Ph.D., Professor of Histology and Embryology, University of Virginia. Fifth edition. Cloth. Price, $7. Pp. 857, with 598 illustrations. New York: D. Appleton & Company, 1930.

The fact that this book appears now in the fifth edition in fifteen years attests its popularity with medical students, for whom it was written. Features that have made it popular with them are the clearness of the text and the abundance of the illustrations. There are 594 figures with 4 plates. More than half were made especially for this work and many are based on photographs. The chapters on histologic technic and on directions for laboratory work have made it especially useful in the class room. In this edition the section on the function of the hypophysis has been rewritten and there has been added a new view of bone growth based on the work of Policard and Leriche ascribing a new rôle to osteoblasts, osteoclasts and bone cells. Progress in other fields has been noted mainly by footnotes to the text.

DIETETICS FOR HIGH SCHOOLS: A TEXTBOOK IN NUTRITION AND FOOD ECONOMICS. By Florence Willard, Chairman of the Department of Home Economics, Washington Irving High School, New York City, N. Y., and Lucy H. Gillett, Superintendent of the Nutrition Bureau, N. Y. A. I. C. P., New York City, N. Y. Second edition. Leatherette. Price, $1.40. Pp. 290, with 28 charts. New York: Macmillan Company, 1930.

This textbook on dietetics is intended as a help to teachers to present the principles of nutrition in a simple yet scientific manner in the last year of junior high school or any year in senior high school. The subject matter is arranged for one year of five recitation periods per week. Problems, questions and references accompany the chapters. The purpose is to awaken the interest of the youthful student in the more prominent facts of the newer knowledge of nutrition, to make him conscious of habits of food health, to provide a simple understanding of the chemistry of foods, and to teach him how to select the food he needs. The subject matter is presented with a view to practical application. Chapters are devoted to the energy value of food, energy requirements of individuals, composition of foods, mineral elements and vitamins. The latter half of the book considers practical food selection in general and for the members of a family of six children of scattered ages, the parents and the grandmother. Planning of meals and purchasing of food to meet body needs and restrictions of the pocketbook are discussed. Forty-one useful tables are given.

DIE THERAPIE DER WIENER SPEZIALÄRZTE. Bearbeitet von den Fachärzten Wiens. Herausgegeben von Dr. Otfried O. Fellner, Frauenarzt in Wien. Third edition. Cloth. Price, 20 marks. Pp. 666. Berlin: Urban & Schwarzenberg, 1930.

A book on therapy, that is the product of more than a hundred medical and surgical specialists of the celebrated Viennese clinic and arranged alphabetically for ready reference, deserves recognition by practitioners who read German. It is so replete with useful, generally orthodox, information, that it is perhaps invidious to point out minor defects, such as excessive fondness for proprietary medicines, on the part of some of the contributors.

Miscellany

REPORT ON MINERS' PHTHISIS IN SOUTH AFRICA

The Miners' Phthisis Medical Bureau of the Union of South Africa in the year ended July 31, 1929, made 45,801 examinations and case investigations. The diagnostic procedure now in use for several years and noted in previous reports has become a standard of the bureau for the diagnosis of silicosis. The continued use of the method has served to confirm it as a standard rather than to produce any modification. Silicosis progresses more rapidly among the African natives who work in the mines than among the European laborers. It is well known that tuberculosis commonly exists in conjunction with silicosis. Obvious tuberculosis was found in 31.4 per cent of 121 cases in which silicosis was found, post mortem, during the year. Evidence of silicosis was found after death in the lungs of fifteen persons whom the bureau had examined within six months of death without finding clinical evidence of silicosis or tuberculosis. The amount of silicosis found by the pathologist in these fifteen cases after death was "very slight" or "slight," except in two cases in which it was classified as "moderate." The bureau examined 22,447 specimens of sputum, of which 2,620 were from Europeans and 19,827 from natives; 15.11 per cent of the former and 16.89 per cent of the latter were positive for tubercle bacilli. Comparatively few specimens of urine were examined. The conclusion drawn was that there is no evidence of a larger number of cases of disordered kidney function among silicotic persons than among those who do not have silicosis. The total number of working miners examined was 15,492, all of whom had previously had an initial or a periodic examination. Among these, 424 were found to have simple silicosis, giving a rate of 2,737 per hundred thousand; 154 of these cases, however, were old cases; that is, miners who had previously been certified as having silicosis. There were, therefore, 270 new cases which originated during the year. The rate at which new cases of silicosis developed for all working miners was 1,761 per hundred thousand, as compared with a rate of 1,941 for the previous year. With one exception, the rate was the lowest on record for the last ten years and was less than half the rate for the year 1925-1926.

During the year, 22 cases of simple silicosis developed among 8,360 "New Rand miners"; that is, those who have been working at scheduled mines only since Aug. 1, 1916. The rate of incidence of new cases among them was, therefore, 263 per hundred thousand. The average duration of underground work of these 22 new cases was nine years and nine months. Among 5,672 "Old Rand miners" (those who commenced work prior to Aug. 1, 1916) there were 197 new cases of silicosis, a rate for them of 3,473 per hundred thousand. The average duration of work in the scheduled mine performed by these 197 miners who became silicotic during the year was twelve years and eleven months.

There has been since the period 1920-1923 a fall in production rates for silicosis of 36 per cent. The reduction was not gradual during the whole period, for there was a marked rise from 1923 to 1926. It is likely that not much, if any, further decrease in the number of cases arising is likely to take place for years to come. The cause for the reduction was given in previous reports by the bureau and was not discussed in detail in the last report. The average duration of underground service of those who contracted silicosis has increased in about ten years from 114 to 151 months. It is necessary to repeat that this reduction in the length of service applies only to those miners who actually contracted silicosis and not to the whole body of working miners. The figures of twelve or thirteen years cannot, therefore, be regarded as an approximate measure of the average effective working life of a miner.

A nontuberculous nodular fibrosis of the lung, due to silica dust, is a distinct pathologic process and is the chief feature of the majority of cases of simple silicosis. This process may advance considerably without being complicated by infection. There exists, however, in most cases of simple silicosis, from the time that it becomes detectable, a latent low grade tuberculous infection, which may be associated with some of the silicotic lesions. These infected lesions may originate from tuberculous foci, dating back to early life, or they may be due to a reinfection occurring during the development of the silicotic lesions. Gye and Kettle have shown that finely divided silica has a specific effect in the selection of the site of tuberculous infection. It is characteristic that a chronic tuberculous infection developing in a silicotic lung is apt to be of low virulence and accompanied by excessive fibroid reaction, resulting in large areas of a massive infective consolidation in which the siliotic nodules are cemented together by organized inflammatory products. To this condition the general term "infective silicosis" or "tuberculosilicosis" has been applied. Uncomplicated silicosis may undergo prolonged and apparently indefinite arrest at any stage; this is also true, to a less extent, of "infective silicosis." While the condition may remain practically stationary for long periods, infection gets the upper hand in the end, and, when that occurs, the greater the amount of original damage to the lung, by silicosis, the more rapid will be the final breakdown.

The great diminution in the amount of dust in mine air has been the chief factor in lessening the incidence of silicosis. That fact, however, is believed to be the chief cause also of a change in the type of the disease to a relatively more infective type and, therefore, to a more progressive type. The effect of great quantities of dust was to produce an excessive fibrosis and this tended in many cases to retard the progress of tuberculosis. There is still the same need for the fullest control of early tuberculosis, that existed formerly when silicosis was more prevalent, because the tendency of the disease toward termination by a tuberculous infection has in no way diminished. Among 15,492 miners undergoing periodic examinations during the year, 44 had simple tuberculosis, a rate of 284 per hundred thousand. This was considerably higher than for the previous year. The report demonstrates plainly that the liability to death bears a direct relation to the relative prominence of the tuberculous factor in each class of case. An early conjunction of active tuberculosis with silicosis produces a condition that is more rapidly fatal than an active simple tuberculosis alone. The

report is signed by Dr. Louis H. Irvine, chairman of the Miners' Phthisis Medical Bureau. The personnel of the bureau comprising physicians, medical examiners, radiologists, pathologists, photographers and clerks, did not change during the year.

Medicolegal

Loss of Remaining Eye in Industrial Accident

(Lehman v. Schmahl, State Treasurer, (Minn.), 229 N. W. 553)

Section 4276, G. S. of Minnesota, 1923, provides, in part, as follows:

> If an employe receive an injury, which of itself, would only cause permanent partial disability, but which combined with a previous disability does in fact cause permanent total disability, the employer shall only be liable for the permanent partial disability caused by the subsequent injury.
>
> Provided, however, that in addition to compensation for such permanent partial disability and after the cessation of the payments for the prescribed period of weeks, the employe shall be paid by the state the remainder of the compensation that would be due for permanent total disability, out of a special fund known as the Special Compensation Fund. . . .

Lehman lost the sight of one eye through the formation of a cataract. Subsequently an injury sustained in the course of his employment destroyed the other eye. His employer and the insurance carrier compensated him for permanent partial disability. The industrial commission awarded him the remainder of the compensation payable for permanent total disability, to be paid out of the special compensation fund, established by payments which every employer or his insurance carrier is required to make for every injury causing the death of an employee who leaves no dependents entitled to compensation. The state treasurer, the custodian of the special fund, thereupon appealed to the Supreme Court of Minnesota, contending that the previous partial disability of Lehman resulted from natural causes in no way connected with an industrial accident. The legislature, it was urged, intended to impose on industry liability for disability resulting from industrial accidents but did not intend to impose on industry liability for disabilities resulting from natural causes.

The legislature recognized, the court said, that a partially disabled workman would be handicapped in obtaining employment if the employer were to be held liable for total disability in case a subsequent disability combined with the prior disability should result in total disability. It would be inequitable, too, to require the last employer to bear the entire burden in such cases. The legislature recognized, on the other hand, that where a partially disabled workman suffers an injury which, of itself, would cause only partial disability but which, added to the prior disability, causes total disability, he loses entirely the power to earn which he previously possessed and which he would still possess but for the subsequent injury. To provide for such cases the special compensation fund was created.

Where a workman having but one eye, said the supreme court, loses that, the compensation provided for the loss of one eye, based on the theory that he still retains the use of the other, is far from adequate. The section of the statute quoted was intended to provide for such cases. The incapacity resulting to a workman from the loss of his remaining eye is the same whether he lost the other in an industrial accident or in some other manner. The statute grants the additional compensation where an injury causing partial disability, combined with a *previous disability*, causes total disability. The statute uses the words *previous disability* without in any way limiting the meaning to be given to them. There is nothing to indicate an intention to give the additional compensation only in those cases in which the *previous disability* resulted from an industrial accident. If the legislature had intended the additional relief to be given in such cases only, it would have expressed that intention in the statute.

In view of the liberal construction given to such statutes for the purpose of securing for a disabled workman the benefits intended, the court affirmed the award of the industrial commission.

Death Following Vaccination a Compensable Injury

(Neudeck v. Ford Motor Co. (Mich.), 229 N. W. 438)

The Ford Motor Company ordered the vaccination of its employees, at the request of the Detroit board of health. The claimant's husband, an employee of the company, was so vaccinated and subsequently died. The claimant was awarded compensation by the department of labor and industry and the employer brought certiorari to the Supreme Court of Michigan. It was agreed that the company ordered the employee to be vaccinated, that he was vaccinated by a company physician, and that as a result of the vaccination the employee incurred a streptococcus poisoning, the focus of the infection being the vaccinated arm, from which he died. The company contended that the vaccination was not an accident, and, further, that if the infection was an accident there was no proof that the germs entered the wound at the time of vaccination or when the employee was at work.

In a note to 39 A. L. R. 872, it is stated:

> An external infection which has been distinctly traced to a definite point of contact, such as a scratch or abrasion, and to a definite time, being of an unusual nature and generally happening suddenly or unexpectedly, is generally held to constitute an accident, or an injury by accident, within the meaning of the act.

This rule, said the supreme court, is sustained by the decisions in *Cline* v. *Studebaker Corporation*, 189 Mich. 514, 155 N. W. 519, L. R. A. 1916 C, 1139, and *Blaess* v. *Dolph*, 195 Mich. 137, 161 N. W. 885. In the Cline case an infection developed in the eye of an employee from an attempt of a fellow workman to remove a piece of steel from it. In the Blaess case, an undertaker's assistant became infected through a slight cut on his finger while working on the body of one who had died from infection. In both of these cases the infection was held to be an accident.

The company relied on the case of *Krout* v. *J. L. Hudson Co.*, 200 Mich. 287, 166 N. W. 848, L. R. A. 1918 F, 860, in which an employee was vaccinated by a physician employed by the city board of health and later contracted infection. It was held that the infection was not a compensable accident because there was no evidence that the germs lodged in the employee's arm in the course of employment and no connection was shown between the employment and the infection following vaccination. The present case is readily distinguished from the Krout case, the court said. There the vaccination was by a public agency, independent of the employer and the employment. Here the vaccination was performed by the company's physician and submitted to by the employee under the direct order of the company. Neither the employee nor the company was under the compulsion of public authorities. The vaccination occurred in the course and out of the employment.

The vaccination wound itself was not an accident because it was not an "unforeseen event." Vaccination is usually harmless, but when infection results therefrom the infection is an accident. Of course, no one could testify that he saw a germ enter the wound. The most that could be done would be to state the condition which would render the infection probable or possible. No testimony was introduced to indicate how or when the infection occurred, or to show its cause. It was agreed, however, that the infection was an effect of the vaccination, and this agreement ties the accident of infection to the act of vaccination as occurring in the course of employment.

The award of compensation was accordingly affirmed.

Society Proceedings

COMING MEETINGS

American Society for the Study of Disorders of Speech, Chicago, December 30-January 1. Dr. Sara M. Stinchfield, Mount Holyoke College, South Hadley, Mass., Secretary.

American Society of Tropical Medicine, Cleveland, December 27-30. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Secretary.

American Student Health Association, New York City, December 29-30. Dr. D. F. Smiley, Cornell University, Ithaca, N. Y., Secretary.

Society of American Bacteriologists, Boston, December 29-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

20: 1179-1273 (Nov.) 1930

Incidence of Jake Paralysis in Oklahoma. D. T. Bowden, L. A. Turley and H. A. Shoemaker, Oklahoma City.—p. 1179.
Sanitary Features of Irrigation. J. H. Rider, Tucson, Ariz.—p. 1187.
Control of Thermophilic Bacteria in Pasteurizing Plants. M. W. Yale and R. S. Breed, Geneva, N. Y.—p. 1192.
Sickness Records in School Hygiene. J. Downes, New York.—p. 1199.
Peep into West Indian Medical History. J. A. Ogilvie, Porus, Jamaica, B. W. I.—p. 1207.
Bacteriologic Study of Grade A Pasteurized Milk. C. Brooks, New York.—p. 1209.
Incubation of Completed Kahn Test. N. Nagle and J. Lazarov, St. Louis.—p. 1216.
Mobile Milk Laboratories. T. Parran, Jr., Albany, N. Y.—p. 1219.

Archives of Internal Medicine, Chicago

46: 553-740 (Oct.) 1930

*Resuscitation of Stopped Heart by Intracardiac Therapy. A. S. Hyman, New York.—p. 553.
*Diabetes Mellitus: Is Climate Responsible Factor in Etiology? C. A. Mills, Cincinnati.—p. 569.
*Id.: Sugar Consumption in Etiology. C. A. Mills, Cincinnati.—p. 582.
*Blood Platelets: Improved Indirect Method for Enumeration. I. Olef, Boston.—p. 585.
*Tropical Sprue: Thirty-Six Cases. E. A. Baumgartner and C. H. Jewett, Clifton Springs, N. Y.—p. 597.
*Arteriovenous Difference in Blood Sugar Content. B. Y. Glassberg, St. Louis.—p. 605.
Nature of Graves' Disease. E. Moschcowitz, New York.—p. 610.
*Oxygen and Carbon Dioxide Content of Blood from Internal Jugular and Other Veins. W. G. Lennox, Boston.—p. 630.
Pulmonary Tuberculosis: Treatment in Allergen-Proof Chambers. W. Storm van Leeuwen, Leiden, Holland.—p. 637.
Specific Effect of Bile Salts on Pneumococci and on Pneumococcus Pneumonia. E. E. Ziegler, Northport, N. Y.—p. 644.
*Appearance Time of T Wave Changes in Electrocardiogram Following Acute Coronary Occlusion: Two Cases. L. M. Hurxthal, Boston.—p. 657.
Evaluation of Expulsion of Enemas as Criterion of Intestinal Obstruction. O. H. Wangensteen and R. O. Goehl, Minneapolis.—p. 669.
*Primary Carcinoma of Lungs with Metastases to Central Nervous System. C. Davison and W. A. Horwitz, New York.—p. 680.
Peripheral Arterial Disease in Polycythemia Vera. G. E. Brown and H. Z. Giffin, Rochester, Minn.—p. 705.
*Acute Monocytic (Histiocytic) Leukemia. W. Dameshek, Boston.—p. 718.

Resuscitation of Stopped Heart by Intracardiac Therapy.—Hyman asserts that the success of the intracardiac injection procedure for the resuscitation of the stopped heart is apparently due more to the effect of the puncture wound made in the wall of the heart than to the chemical substance injected. The puncture wound made by the injecting needle becomes a focus of increased irritability from which a stimulus for myocardial contraction may be developed. The first contractions of the heart after injection are always extrasystoles. The initial extrasystolic arrhythmia may give way quickly to a normal sinus rhythm, with prompt recovery on the part of the patient. However, when the period of anoxemia has been so prolonged or so intense that there is considerable disturbance in the electrodynamic factors controlling myocardial contraction, the initial extrasystolic arrhythmia may persist and may be quickly followed by a rapid sequence of ectopic beats. Such a condition leads to pathologic fatigue of the ventricles, which may be followed by ventricular fibrillation. Ventricular fibrillation is an extremely hazardous disturbance of the heart and is usually accompanied by immediate collapse of the circulation and death of the patient. This phenomenon explains the secondary collapse of the circulation often seen following what has apparently been a successful resuscitation of an asystolic heart. It is suggested, therefore, that the intracardiac puncture be made into the right auricle instead of into the ventricles as is now practiced.

Is Climate Responsible Factor in Etiology of Diabetes Mellitus?—Mills feels that one can scarcely avoid the conclusion that climate is, in part at least, responsible for the incidence of diabetes in all races. The regions possessing the most changeable and stimulating climate are the ones with the highest incidence of diabetes. In some of these, it is true, life is intense and complex, and the sugar consumption high, indeed; but in certain others, equally stimulating, almost the same frequency of diabetes is seen without the high sugar consumption to which it is attributed. One is inclined to attribute the increase in diabetes and consumption of sugar to the same cause, namely, overstimulation by a highly changeable climate, leading to a desire for the sugars as readily available producers of energy, but also leading to an increase in diabetes whether this desire for sweets is satisfied or not. The increase is probably much more marked when the prosperity of the people permits them to indulge this desire without stint. Prosperity may also act by lessening the physical effort required, thus making the intake of sugar still more excessive so far as physiologic needs are concerned.

Sugar Consumption in Diabetes Mellitus.—Mills states definitely that consumption of sugar as such is not related in a causal way to the death rate from diabetes.

Improved Indirect Method for Enumeration of Blood Platelets.—The method devised by Olef for the enumeration of platelets adheres to the leading principles that must be taken into consideration in counting platelets: (1) avoidance of contact between the undiluted blood and glassware or metal, (2) mixing of the freshly drawn blood as quickly as possible with the preserving fluid and (3) avoidance of all unnecessary manipulations of the blood. It dispenses with the use of the graduated pipet and counting chamber. It eliminates the errors resulting from the inclusion in the platelet count of degeneration products of erythrocytes ("Arnold bodies") and of finely particulated foreign matter. The results obtained are higher than ever previously obtained by similar methods.

Tropical Sprue.—In sixteen of thirty-six cases reported by Baumgartner and Jewett, the blood picture was similar to that in pernicious anemia; in all but four the condition could be conclusively shown not to be pernicious anemia (Addison), because free hydrochloric acid was found in the stomach, a low blood calcium with or without tetanic reactions was present, or a definitely large dilated colon occurred, which they believe is a characteristic of sprue and is not found in pernicious anemia. Several cases showed a severe secondary type of anemia. Improvement in the general physical condition with a definite return of the appetite almost always occurs with a restriction of carbohydrates and fats in the diet. Liver is valuable as treatment in the severely anemic cases frequently found.

Arteriovenous Difference in Blood Sugar Content.—Glassberg believes that it is not justified, on the basis of present knowledge, to attach a diagnostic significance to the arteriovenous difference in blood sugar content. It remains to be determined whether diabetic patients can be regrouped into two therapeutic or prognostic groups depending on whether the arteriovenous difference in blood sugar content lies within or below the range determined as normal.

Oxygen and Carbon Dioxide in Blood from Internal Jugular and Other Veins.—Lennox measured the oxygen and the carbon dioxide content of the blood from an artery and from various veins in a large series of cases. The gaseous content of blood from the femoral vein was found to be the same as that of blood from a cubital vein. In sharp contrast, blood from the internal jugular vein was more reduced and blood from the external jugular less reduced than from a cubital vein. These statements are true for average values. Measurements for individual patients varied widely. In a series of fifty-one patients, the average corrected respiratory quotient for blood from a cubital vein was 0.84 and from the internal jugular vein, 0.9. More sugar disappeared from the blood in its passage through the brain than in its passage through the arm. The former of these observations suggests that, in the metabolism of the human brain, carbohydrates are unusually important.

T Wave Changes in Electrocardiogram in Coronary Occlusion.—Experimental work cited by Hurxthal shows that increased amplitude of the T wave follows ligation or injury to the muscles supplied by a coronary artery; cooling causes depression of the T wave. Two cases are reported in which records were obtained before and after attacks. One case showed an upright T wave in all leads one hour after the onset of the attack, later followed by depression, whereas the record six days before the attack showed an inverted T wave in lead I. The second case showed a distinct but not diagnostic change one hour and fifteen minutes after onset. It is suggested that electrocardiographic observations be made at more frequent intervals following acute coronary occlusion. Such observations may prove of distinct value in diagnosis.

Carcinoma of Lungs with Metastases to Central Nervous System.—A group of 12 cases selected from 109 in which the condition was diagnosed as primary carcinoma of the lung was studied by Davison and Horwitz from the point of view of metastases of the central nervous system. Three cases showed symptoms of the spinal cord due to compression following invasion and destruction of the vertebra by the metastases. Of 109 cases of primary carcinoma of the lungs investigated, 11 per cent showed involvement of the central nervous system. One of the cases came to necropsy and revealed compression and distortion of the cord without circulatory interference. The onset in most of the cases showing neurologic signs came on suddenly. The most frequent histologic types of primary carcinoma of the lung with or without metastases to the central nervous system were those derived from the bronchi.

Acute Monocytic (Histiocytic) Leukemia.—Two cases are presented by Dameshek in which the diagnosis of acute monocytic leukemia was made. Supravital staining of the blood served to confirm the diagnosis of the type cell, the histiocyte. A review of the literature on the subject is presented. Since the conception of the third form of leukemia is linked intimately with the studies on the reticulo-endothelial system and on the monocyte, these subjects are discussed in some detail. The monocyte appears to be a distinctive cell directly derived from the reticulo-endothelial system. Various disorders of this system have been described: abnormal storage (Gaucher's disease, Niemann-Pick's disease, xanthomatosis); irritations due to infections (monocytosis); tumor growth (endothelioma, reticuloma), and proliferation (leukemia). The proliferative lesions—reticulo-endotheliosis—may be leukemic or aleukemic. Leukemic proliferation results in the clinical entity known as monocytic leukemia. It is thought, therefore, that the third type of leukemia should be added to the two accepted types. Though apparently much rarer than either myelogenous or lymphatic leukemia, clear-cut cases of monocytic leukemia at times appear and should not escape recognition.

Colorado Medicine, Denver

27: 413-454 (Nov.) 1930

Physiology of Pulmonary Atelectasis. H. Sewall, Denver.—p. 415.
*Pathology of Atelectasis and Relation to Pulmonary Infection. W. C. Johnson, Denver.—p. 419.
Roentgen Diagnosis. K. D. A. Allen, Denver.—p. 424.
*Atelectasis: Clinical Signs, Symptoms, Differential Diagnosis and Treatment. W. B. Yegge, Denver.—p. 432.
Treatment of Atelectasis. P. J. Connor, Denver.—p. 435.
Bronchoscopic Diagnosis and Treatment of Massive Atelectasis. T. E. Carmody, Denver.—p. 437.
Arachnoidism. D. Prey, Denver.—p. 440.

Pathology of Atelectasis and Relation to Pulmonary Infection.—Two fatal cases of bilateral postoperative atelectasis are reported by Johnson. He asserts that atelectasis, especially of the patchy or lobular variety, is a common finding at necropsy, but there have been comparatively few postmortems in cases of postoperative massive collapse. The most satisfactory theory regarding the latter condition is that it is due to a combination of bronchial obstruction with diminished force of respiration. The conditions found in necropsies have not been constant. Bronchial obstruction has been present in some and absent in others. Two necropsies are reported in cases of bilateral postoperative massive collapse in which no obstruction could be found. Atelectatic lung tissue in itself is probably no more susceptible to infection than normal lung, but, if the atelectasis is produced by obstruction with material containing virulent organisms, infection may spread into the obstructed lung with resultant pneumonia.

Atelectasis.—Yegge bases a diagnosis of this condition on the following: In cases that have no history of a chill, and have a sudden onset with dyspnea, cyanosis, rapid pulse and respiration, with fever, a white count between 15,000 and 20,000, and physical signs showing a displaced apex beat toward an area of dulness that at one time shows bronchial breathing and at another decreased breath sounds with a compensatory emphysema in the contralateral lung, and if the sputum is mucopurulent with no blood, one must think of atelectasis. The most conclusive sign in atelectasis is the shifting of the mediastinal structures toward the affected side in unilateral cases.

Delaware State Medical Journal, Wilmington

2: 167-184 (Oct.) 1930

Historical Outline of Medicine. I. J. MacCollum, Wyoming.—p. 167.
Klair Law. C. P. White, Wilmington.—p. 169.

Endocrinology, Los Angeles

14: 209-308 (July-Aug.) 1930

New Concepts Concerning Pathogenesis of Obesity and Problems of Basal Metabolism. H. Bernhardt, Berlin, Germany.—p. 209.
Effect of Insulin on Rate of Dialysis of Diabetic Blood Sugar. I. S. Kleiner, H. Birnkrant and T. Rothman, New York.—p. 226.
Cortin, Vital Hormone of Suprarenal Cortex. F. A. Hartman, Buffalo, N. Y.—p. 229.
Effects of Growth Promoting and Gonad Stimulating Principles of Anterior Lobe of Pituitary on Basal Gaseous Metabolism in Rat. M. O. Lee and J. Gagnon, Boston.—p. 233.
Endocrine Influence on Menstruation. A. W. Rowe, Boston.—p. 243.
Ligation of Tail of Pancreas in Juvenile Diabetes. G. de Takáts, Chicago.—p. 255.
Practicability of Ovarian (Auto-, Homo- and Hetero-) Implantation. M. Thorek, Chicago.—p. 265.
Relation of Weight to Diabetes. H. J. John, Cleveland.—p. 282.

Iowa State Medical Society Journal, Des Moines

20: 447-494 (Oct.) 1930

Head Injuries: Results Obtained with Dehydration in Forty-Eight Consecutive Cases. T. Fay, Philadelphia.—p. 447.
Public Health Survey of Iowa. A. J. McLaughlin, Chicago.—p. 467.
Sacro-Iliac and Sacrolumbar Sprain. L. J. Miltner, Iowa City.—p. 473.
Narcolepsy and Cataplexy. C. Van Epps, Iowa City.—p. 476.

Journal of Experimental Medicine, Baltimore

52: 649-803 (Nov. 1) 1930

*Typhus Fever: II. Etiology of Mexican Typhus Fever. H. Zinsser and M. R. Castaneda, Boston.—p. 649.
*Id.: III. Lice and Bedbugs with Mexican Typhus Fever Virus. M. R. Castaneda and H. Zinsser, Boston.—p. 661.
*Experimental Fibrous Osteodystrophy (Osteitis Fibrosa) in Hyperparathyroid Dogs. H. L. Jaffe and A. Bodansky, New York.—p. 669.
Chemical Alterations in Blood of Rats Infected with Pathogenic and Nonpathogenic Trypanosomes. R. W. Linton, New York.—p. 695.
*Common Cold. A. R. Dochez, G. S. Shibley and K. C. Mills, New York.—p. 701.
Serology of Syphilis: I. Mechanism of Flocculation Reactions. H. Eagle, Baltimore.—p. 717.
Id.: II. Physical Basis of Wassermann Reaction. H. Eagle, Baltimore.—p. 739.
Id.: III. Explanation of Fortifying Effect of Cholesterin on Antigen Used in Wassermann and Flocculation Tests. H. Eagle, Baltimore.—p. 747.
Killing of Colon Bacilli by Roentgen Rays of Different Wavelengths. R. W. G. Wyckoff, New York.—p. 769.
Effect of Bacterial Variation on Factors Necessary for Phenomenon of Local Skin Reactivity to Bacterial Filtrates. G. Shwartzman, New York.—p. 781.

Etiology of Mexican Typhus Fever.—Zinsser and Castaneda have adduced strong evidence in favor of identifying the virus of Mexican typhus fever with the rickettsiae, or Mooser bodies, observed in the tunica lesions of Mexican typhus guinea-pigs. Were it not for the possible presence of a few remaining cell fragments in the washings, they would consider this evidence crucial proof.

Lice and Bedbugs with Mexican Typhus Fever Virus.—Experiments made by Castaneda and Zinsser have shown that the Mooser bodies, or rickettsiae, derived from guinea-pigs with Mexican typhus fever can survive in bedbugs after intracoelomic injection for ten days, remaining capable of infection. They have also succeeded in similarly infecting bedbugs by allowing them to feed on benzolized rats in whose blood rickettsiae had been shown to be present. Injection of the

organs of such bedbugs five days after the last, nine days after the first infectious feeding into guinea-pigs produced typical Mexican typhus fever. Some of the guinea-pigs infected with such bedbug organs and passing through a typical typhus proved to be immune to subsequent inoculation with the European disease. Attempts to infect normal guinea-pigs by allowing infected bedbugs to feed on them or by rubbing the feces into the uninjured skin have so far been unsuccessful.

Experimental Fibrous Osteodystrophy in Hyperparathyroid Dogs. — Experiments made by Jaffe and Bodansky have shown that parathyroid extract-Collip can be injected into puppies in increasing amounts for long periods without fatal results. Thus time is allowed for bone changes to develop. Long continued injection leads to progressive decalcification and resorption of the existing bone, to fibrous replacement of the marrow, and to the production of the other features characteristic of osteitis fibrosa. Deformities eventually appear. It is safe to assume that the bone changes produced by hyperparathyroidization have the same pathogenesis as those observed in clinical cases believed to be instances of hyperparathyroidism — that is, cases with a negative mineral balance and decalcification of the skeleton.

Common Cold.—Human colds have been successfully transmitted by Dochez et al. to apes and human volunteers in 44 per cent of instances tried by means of filtered nasal washings obtained from colds.

Journal of Urology, Baltimore

24: 445-547 (Nov.) 1930

Primary Carcinoma of Ureter: Case. N. F. Ockerblad and F. C. Helwig, Kansas City, Mo.—p. 451.
Disposition of Ureteral Calculi at Crowell Clinic from 1915 to March 31, 1930. C. B. Squires, Charlotte, N. C.—p. 461.
Rapid Formation of Large Ureteral Calculus with Recurrent Bladder Stone. W. Crane, Oakland, Calif.—p. 463.
Indications and Contraindications for Nephrectomy in Renal Tuberculosis. W. M. Spitzer, Denver.—p. 469.
Clinical Evidence on Question of Movable Kidney. B. Lewis and G. Carroll, St. Louis.—p. 479.
Renal Neoplasm with Resection of Involved Colon: Case with Recovery. H. Sugar, Halle, Germany.—p. 487.
Squamous Cell Carcinoma of Kidney Pelvis. J. A. Bowen and G. A. Bennett, Boston.—p. 495.
Heminephrectomy for Calculus Pyonephrosis in Case of Bilateral Duplication of Ureters and Pelves. J. A. Lazarus, New York.—p. 503.
Pyelography Accident: Puncture of Wall of Ureter by Catheter. J. C. Sargent, Milwaukee.—p. 513.
Carcinoma in Diverticulum of Bladder. W. T. Briggs, Lexington, Ky. —p. 517.
Carcinoma in Diverticulum of Bladder: Case. R. D. Gill, Wheeling, W. Va.—p. 521.
Urinary Fistula Complicating Osteomyelitis of Pelvis: Case. N. W. Bourne, Milwaukee.—p. 531.
Chewing Gum in Male Urinary Bladder. G. H. Ewell, Madison, Wis. —p. 537.
Sarcoma of Prostatic Area in Infant of Four Months. R. J. Holmes and M. M. Coplan, Miami, Fla.—p. 539.

Medical Journal and Record, New York

132: 417-468 (Nov. 5) 1930

Flora of Intestinal Tract. A. E. Thomson, M. Einhorn and W. Coleman, New York.—p. 417.
Employment of Infiltration Anesthesia in Reduction of Fractures. C. O. Rice, Minneapolis.—p. 423.
Cost of Medical Care. O. T. Osborne, New Haven, Conn.—p. 426.
Etiology and Mechanism of Diabetes Mellitus. J. A. Buchanan, New York.—p. 427.
Actinomycosis. H. P. Jacobson, Los Angeles.—p. 431.
Management of Hyperemotionalism and States of Anxiety. T. A. Williams, Washington, D. C.—p. 435.
Electrocardiograph Studies of Mentally Ill. J. A. Jackson and C. A. Zeller, Danville, Pa.—p. 439.
Advantage of Making Mental Survey of Patients Applying for Orthopedic Treatment. H. Keller, New York.—p. 445.
Prophylaxis in Mental Deficiency. E. A. Whitney, Elwyn, Pa.—p. 449.
Device for Obtaining Small Amounts of Blood Serum. A. R. K. Matthews and E. M. Watson, London, Canada.—p. 451.
Instrument for Illumination of Hirschman Anoscope. C. E. Pope, Chicago.—p. 451.
Intravenous Administration of Morphine. M. Salzer, Cincinnati.—p. 452.
Technic of Nasal Cauterization and Effects on Sympathetic Nervous System. A. Leprince, Nice, France.—p. 452.
Electric Knife in Prostate Gland Operations. J. M. White, Montgomery, Ala.—p. 453.
Use of Bees in Medicine. E. Podolsky, New York.—p. 454.
Dr. Edward Jenner and the Canadian Pirate. W. R. Riddell, Toronto. —p. 456.

Military Surgeon, Washington, D. C.

67: 557-691 (Nov.) 1930

One Contribution by Army Medical Officers to Science. A. Agramonte. —p. 557.
Effects of Philippine Service on Officer Personnel. W. F. Rice, H. R. McKellar, J. S. Simmons, D. B. Brinsmade, O. A. Hanson, R. E. Elvins and E. G. G. Standlee.—p. 565.
Fundamental Principles of Physical Therapy. W. J. Tindall.—p. 575.
Tropical Veterinary Problems. N. S. Mayo.—p. 582.
Medical Service in Alaska. A. M. Brailsford.—p. 585.
Rodent Destruction. G. V. Rukke.—p. 592.
Dracontiasis: Case. H. P. Makel and V. T. De Vault.—p. 600.
Epidemic of Cerebrospinal Meningitis. J. W. Smith, Jr.—p. 605.
Multiple Valvular Heart Disease Complicated by Scarlet Fever: Case. D. C. Absher.—p. 615.
Undulant Fever in Territory of Hawaii. M. Ashford and E. Quinnell. —p. 617.
First Cases of Jamaica Ginger Paralysis in United States Army. E. E. Hume.—p. 621.

Minnesota Medicine, St. Paul

13: 775-854 (Nov.) 1930

*Use of Tannic Acid in Burns of Children. E. C. Davidson, Detroit.— p. 775.
Early Diagnosis of Carcinoma of Stomach. L. G. Rigler, Minneapolis. —p. 784.
Early Diagnosis and Treatment of Malignant Conditions of Mouth and Lips. F. A. Figi, Rochester.—p. 788.
Early Diagnosis of Cancer of Uterus. W. A. Coventry and R. J. Moe, Duluth.—p. 793.
Diagnosis of Malignant Conditions of Colon. F. W. Rankin, Rochester. —p. 796.
Early Diagnosis and Treatment of Malignancy of Breast. O. J. Campbell, Minneapolis.—p. 803.
Malignant Lesions of Kidneys, Bladder, Prostate Gland and Testes. W. Walters, Rochester.—p. 808.
*Effect of Liver and Liver Extract on Symptoms and Signs Referable to Nervous System in Pernicious Anemia. B. M. Baker, Jr., J. Bordley, III, and W. T. Longcope, Baltimore.—p. 815.
*Treatment of Psoriasis Vulgaris with Intravenous Administration of Acriflavine. S. E. Sweitzer and P. K. Allen, Minneapolis.—p. 818.
Extra-Uterine Pregnancy. J. C. Masson, Rochester.—p. 822.
Surgery of Infant Abdomen. A. A. Zierold, Minneapolis.—p. 826.

Use of Tannic Acid in Burns of Children.—In 62 per cent of the cases admitted to the Children's Hospital of Michigan during the past three years, the burn was due to some one leaving a pail of hot water unprotected, the filling of a bathtub with hot water, and the child falling into it, or due to a child pulling a kettle of hot water, soup or coffee from a stove, spilling the contents over itself. This suggests that more than 60 per cent of the mortality and morbidity of burns in children is definitely avoidable and due to the negligence or carelessness of some one in leaving a pail of water unprotected or filling a bathtub with very hot water and waiting for it to cool, instead of drawing it at the desired temperature, or permitting a child to play around a stove on which something is cooking. The second important causative factor is playing with matches or around a bonfire. Twenty-five per cent of the cases were of this origin. Davidson describes the treatment employed in these cases and commends highly the use of tannic acid because it lessens toxemia, is analgesic and prevents the loss of body fluid; secondary infection is markedly limited by the absence of a favorable nidus for bacterial growth; scar tissue formation has been less marked than that observed after treatment by other methods; the protective layer of coagulated protein forms a scaffold for the growth of the young epithelial cells over the denuded area.

Effect of Liver and Liver Extract in Pernicious Anemia. — Forty-four cases of pernicious anemia, in which there were symptoms referable to changes in the central nervous system, have been treated by Baker et al. by liver or a combination of liver and liver extract. Of twenty-three cases followed for more than six months, improvement in symptoms and signs has occurred in 55.17 per cent. In twenty-one cases treated for less than six months, improvement was noticed in only 31.25 per cent. In eight cases of outspoken combined degeneration, treated for more than ten months, there was improvement of symptoms and signs in 58.9 per cent. The authors emphasize that it is essential that large quantities of liver, or liver and liver extract, be employed over long periods of time. When the amount of liver is much reduced or is dispensed with, relapses may occur promptly. It seems probable that in pernicious anemia the myelin degeneration may occur in the peripheral nerves and brain, as well as in the

spinal cord, and that some of the symptoms and signs that undergo improvement are referable to a peripheral neuritis.

Treatment of Psoriasis Vulgaris with Intravenous Administration of Acriflavine Hydrochloride. — Twenty cases of psoriasis vulgaris treated with intravenous injections of acriflavine hydrochloride are reported by Sweitzer and Allen. All but three cases of the series showed clinical improvement and in four cases the results were striking.

New York State Journal of Medicine, New York

30: 1271-1332 (Nov. 1) 1930

Problems in Child Guidance. E. K. Clarke, Rochester.—p. 1271.
Spinal Anesthesia. L. F. Simpson, Rochester.—p. 1275.
Management of Chronic Sinus Disease. W. V. Mullin, Cleveland.—p. 1280.
Health Services in Colleges and Universities of New York State. O. W. H. Mitchell, Syracuse.—p. 1283.
Blackwater Fever and Urologic Aspect: Case. C. M. Del Valle, New York.—p. 1287.

Ohio State Medical Journal, Columbus

26: 889-976 (Nov. 1) 1930

Fads and Fancies in Obstetrics and Gynecology and Their Cost. J. O. Polak, New York.—p. 909.
Autonomic Imbalance and Hyperthyroidism. L. A. Levison, Toledo.—p. 913.
Brachial Plexus Palsies. J. H. Nichols, Cleveland.—p. 921.
Treatment of Glaucoma Without Operation. W. H. Snyder, Toledo.—p. 927.
Efficacy of Pasteur Treatment. L. W. Childs, Cleveland.—p. 931.

Philippine Islands Medical Assn. Journal, Manila

10: 357-406 (Sept.) 1930

*Basal Metabolism of Filipinos. M. Ocampo, N. Cordero and I. Concepcion, Manila.—p. 357.
Nature and Administration of Ideal School Medical Service. P. I. de Jesus, Manila.—p. 366.
*Treatment of Typhoid Fever by Agostinelli's Method. L. Guerrero and P. Ignacio, Manila.—p. 370.
Hydrocele of Left Scrotum with Complicating, Irreducible Direct Inguinal Hernia in Child One and a Half Years of Age. H. P. Clapp and R. L. Teopaco, Baguio, Mountain Province.—p. 376.
Vital Capacity Standard for Use Among Filipino Men. N. Cordero and M. Ocampo, Manila.—p. 387.

Basal Metabolism of Filipinos. — The metabolism of eighty-eight men and sixteen women was determined by Ocampo et al. by the Benedict-Roth portable metabolism apparatus and found to be —7.8 and —9.3 per cent, respectively, lower than the accepted "Aub-Du Bois Standard." Observations of basal metabolism on two Filipinos while in a temperate climate show no appreciable difference from those made while in the Philippines. The bearing of the present report on the question of racial and climatic factors in metabolism is discussed.

Treatment of Typhoid by Agostinelli's Method.—Forty patients with typhoid were placed under Agostinelli's method of treatment by Guerrero and Ignacio. Fourteen had positive blood culture and the rest had clinical typhoid. Thirty-two recovered; two were unimproved; one improved; five died. The average length of time that these patients remained febrile without treatment was 15.5 days, which means that the disease had already completely developed before they came to the hospital. The average number of days of treatment during the febrile period was 11.5 days, which is probably shorter than the length of ordinary treatment. This agrees with Agostinelli's observation. The average length of the total febrile period was 27.5 days, which is two or three days shorter than the usual duration, since they have observed that about thirty days is the usual febrile period. This does not agree with the observation of Agostinelli that the duration of the disease is shortened to about one half. In one third of the cases there was immediate temporary lowering of the temperature after the first injection, and in some cases the temperature became intermittent in character. Ten of the patients developed complications, and four of them died. Guaiacol and camphor did not seem to have attenuated these complications. Two patients had relapses but recovered under the same treatment. There were no untoward effects of importance. The mortality rate was 12.5 per cent, which was a little lower than that observed in cases under the ordinary treatment. The adjuvant treatments given consisted of horse serum, tincture of digitalis and epinephrine. These were used only when extremely necessary. The authors feel that whatever encouraging results were obtained, such as the slight shortening of the duration of the disease and the lower mortality rate, should not be attributed directly to the effect of the drugs, because it has been their experience that the severity of typhoid may vary from year to year. Agostinelli's technic is as follows: For the first two days, no matter in what period of the disease, hypodermic injection of guaiacol and camphor, 20 cg. each in 1 cc. of olive oil, is given three times a day. From the third day, the dose of each drug is increased to 30 cg. and is given at the same hours. Injections are given as long as there is fever and continued the three days of convalescence following, after which the original 20 cg. dose is resumed. After two days more without fever the morning injection is suspended, and after two days more the evening dose is omitted, until finally the remaining noon injection is discontinued after two more days of convalescence. No other form of treatment is employed and even hydrotherapy is entirely omitted.

Porto Rico. J. Pub. Health. & Trop. Med., San Juan

6: 3-145 (Sept.) 1930

Brucella Abortus in Porto Rico. P. Morales-Otero.—p. 3.
Intermediate Host of Fasciola Hepatica in Porto Rico. W. A. Hoffman.—p. 89.
Helminths in Southern Porto Rico. A. Serra.—p. 91.
Evidence Concerning Transmission of Leprosy. E. B. Vedder.—p. 106.

Radiology, St. Paul

15: 627-762 (Dec.) 1930

*Site of Predilection in Cross-Infection from Right to Left Lung. L. G. Cole, R. W. Morse, R. E. Pound, C. I. Headland and W. G. Cole, New York.—p. 627.
Improved Form of Standard Ionization Chamber. L. S. Taylor and G. Singer, Washington, D. C.—p. 637.
Skin Reactions Following Exposure to Roentgen Rays. E. A. Pohle and C. H. Bunting, Madison, Wis.—p. 647.
Polypi of Accessory Nasal Sinuses. F. J. Hodges, Madison, Wis.—p. 660.
Intravenous Pyelography. A. von Lichtenberg, Berlin, Germany.—p. 664.
Peak Voltage Measurement in Diathermy. A. Hemingway, Minneapolis.—p. 670.
*Cholecystography. M. Feldman, Baltimore.—p. 675.
Clinical Significance of Roentgenologic Findings of Nonmalignant Colon. S. A. Portis, Chicago.—p. 681.
Phytobezoar: Case. R. P. Potter, Marshfield, Wis.—p. 685.
Roentgen Therapy in Treatment of Acute Gonorrheal Arthritis. I. I. Kaplan, New York.—p. 691.
Brain Abscess from Welch Bacillus Infection: Case. V. W. Maxwell, Jackson, Miss.—p. 693.
Milliampere Minute Dose Table for Superficial Therapy. I. S. Trostler, Chicago.—p. 693.
Defects in Membranous Bones, Exophthalmos and Diabetes Insipidus (Christian's Syndrome): Case. T. P. Rothnem, Fargo, N. D.—p. 694.
Tracing of Films to Reduce Fire Hazard. M. A. Loebell, Zanesville, Ohio.—p. 697.

Site of Predilection in Cross-Infection from Right to Left Lung.—Cross-infection from the right to the left lung is apparently quite frequent in the presence of destructive infections of the right lung. Cole et al. found that the site of predilection within which cross-infection usually develops is the middle of the left lung, that part of the lung which is projected between the second and fourth ribs in the roentgenogram. Cross-infection is apparently due to the aspiration of infectious exudate and detritus present in the bronchial tree. The site of predilection is apparently in the path of least resistance beyond the termination of the left main bronchus. Posture of the individual may be a factor in this type of aspiration infection, but it seems probable that the sharp intake of breath following a prolonged cough or paroxysm of coughing is a more important factor in driving secretions present in the smaller bronchi into the air vesicles proper. Estimation of prognosis in any given case of pulmonary infection does not depend entirely on the progress or retrogression of the original areas of infection but must take into consideration whether or not there is secondary infection of other parts of the lung.

Cholecystography. — Oral cholecystography has proved a reliable test in the diagnosis of gallbladder disease in Feldman's experience. Eighty-six cases came to operation; of these, a total correct diagnosis was made in 94.2 per cent. The highest percentages of correct diagnoses occurred in cases of stones and in the gallbladders that failed to fill. The diagnostic errors occurred in the cases with poor filling or faint shadows.

Rhode Island Medical Journal, Providence

13: 161-174 (Nov.) 1930

Benign Pelvic Tumors Containing Endometrial-Like Tissue. B. E. Clarke, Providence.—p. 161.

Keratitis Neuroparalytica from Operation on Trigeminus. V. L. Raia, Providence.—p. 164.

South Carolina Medical Assn. Journal, Greenville

26: 247-270 (Oct.) 1930

Polycystic Disease of Kidneys. E. E. Herlong, Rock Hill.—p. 249.

Results of Faulty Diet. H. Smith, Greenville.—p. 252.

Coronary Thrombosis Simulating Surgical Abdominal Accidents. D. Jennings, Bennettsville.—p. 255.

Ocular Findings in Postencephalitic Parkinson Syndrome. I. Givner, New York.—p. 260.

Southwestern Medicine, Phoenix, Ariz.

14: 457-508 (Oct.) 1930

Hydatidiform Mole: Three Cases. C. E. Yount, Prescott, Ariz.—p. 457.

Significance of Hemoptysis. S. Pritchard and J. K. M. Gordon, Battle Creek, Mich.—p. 468.

Vincent's Infection. R. J. Groom, Santa Rita, N. M.—p. 472.

Preventive Medicine as Applied to Pediatrics. M. K. Wylder, Albuquerque, N. M.—p. 476.

Urologic Problems of Interest to General Practitioner. W. F. Martin, Battle Creek, Mich.—p. 479.

Factors of Safety in Thyroid Surgery. A. B. Cooke, Los Angeles.—p. 484.

Atypical Case of Neurosyphilis with Negative Serology. R. C. Kirkwood, Benson, Ariz.—p. 486.

Abscess of Liver and Atypical Amebic Dysentery: Case. R. B. Raney, Phoenix.—p. 493.

Surgery, Gynecology and Obstetrics, Chicago

51: 591-748 (Nov.) 1930

*Human Bite Infections of Hand. M. L. Mason and S. L. Koch, Chicago.—p. 591.

*Tumors of Parotid Gland. E. B. Benedict and J. V. Meigs, Boston.—p. 626.

Intrathoracic New Growths: Twenty-Four Cases. S. W. Harrington, Rochester, Minn.—p. 647.

*Effects of Electrocautery on Normal Tissues. J. Gottesman, D. Perla and J. M. Ziegler, New York.—p. 667.

*Perinephritic Abscess. M. F. Campbell, New York.—p. 674.

*Primary Carcinoma of Fallopian Tubes. W. W. Holland, Rochester, Minn.—p. 683.

Two-Stage Abdominoperineal Removal of Cancer of Rectum. F. H. Lahey, Boston.—p. 692.

*Surgery of Diabetes as It Concerns Gangrene of Lower Extremities and Carbuncles. U. Maes, New Orleans.—p. 700.

*Method of Reconstruction of Axilla for Contracture. J. H. Garlock, New York.—p. 705.

*Resection of Renal Pelvis for Hydronephrosis: Complications and Results. W. Walters, Rochester, Minn.—p. 711.

*Transplantation of Head and Shaft of Fibula to Humerus. M. Behrend, Philadelphia.—p. 717.

*Injuries to Semilunar Cartilages of Knee Joint. M. S. Henderson, Rochester, Minn.—p. 720.

Mechanism of Gluteal Gait. V. L. Hart, Ann Arbor, Mich.—p. 727.

*Hypertrophic Osteoarthritis of Spine. J. C. Cottrell, Long Beach, Calif.—p. 731.

Infections of Hand from Human Bite.—Thirteen cases are reported by Mason and Koch. They state that bite infections are frequently prolonged in their course and difficult to clear up because the infection is usually introduced deeply into the tissues through a comparatively small wound, because of the character of the infection, because of the anatomic arrangement of the structures involved, and because of the relatively low resistance of fascia, tendon and bone to a mixed infection such as is caused by the organisms present in the mouth. Such infections when introduced into the tissues of the dorsum of the hand—the most common site of inoculation—tend to spread to definite areas, and this extension depends particularly on the exact site and depth of the primary inoculation and on the ease or difficulty with which the infectious material can escape to the surface. In the treatment of such infections an exact knowledge of the sites to which infection tends to spread is of importance. These are, in order of frequency, the subcutaneous space of the dorsum of the hand, the subfascial space of the dorsum of the proximal phalanx, the subaponeurotic spaces of hand and fingers that lie directly over metacarpal bones and proximal phalanges, the metacarpophalangeal joint, the fascial spaces of the palm, and the flexor tendon sheaths. If these sites are kept in mind, extension of infection can be recognized early and accumulations of pus drained before extensive necrosis of tissue has taken place. Unless such infections are drained early and adequately, bone, joint and tendon involvement are certain to occur and to lead to extensive impairment of function.

Tumors of Parotid Gland. — Benedict and Meigs have made a study of 225 cases with complete records as to pathology and end-results in eighty cases. They conclude: Benign tumors are more common than malignant tumors in the ratio of about four to three. Carcinoma is about twice as common as sarcoma. Cysts, melanotic sarcomas and adenomas are extremely rare. Mixed tumors are essentially benign but recur locally with great frequency. They rarely become malignant. Malignant parotid tumors are difficult to cure. Once the diagnosis is established, they advise early radical operation, including ligation of the external carotid artery and severing of the facial nerve whenever necessary. Patients with mixed tumors live indefinitely. Patients with malignant disease rarely live over two years after operation. Radium and roentgen rays are useful in the treatment of malignant parotid tumors but only as palliative procedures. In the treatment of benign parotid tumors, radiation therapy is of benefit in some cases, but they believe that excision is the treatment of choice. Carcinoma, sarcoma and malignant lymphoma may invade the parotid gland secondarily. Such cases usually end fatally, but one brilliant cure reported here justifies many extensive operations and emphasizes the importance of not giving up in the struggle against malignant disease.

Effects of Electrocautery on Normal Tissues.—In a study made by Gottesman et al. of the effect of the electrocautery incision in the skin, muscle, liver, kidney and spleen in normal adult albino rats, it was found that the electrocautery incision produces extensive necrosis, which acts as a foreign body with a resulting foreign body giant cell reaction. The advantages and the disadvantages of the electrocautery are discussed. The promiscuous use of the electrocautery is discouraged.

Perinephric Abscess. — A clinical study was made by Campbell of eighty-three cases of perinephric abscess. Etiologically the disease is of extrarenal or intrarenal origin and in the majority of cases bacterial metastasis is the mechanism. While the predominant symptoms are fever, loin or costovertebral angle pain, leukocytosis, and reflex urinary frequency, disease other than perirenal abscess may be suggested both subjectively and objectively. With this confusion of symptoms and often meager or indefinite clinical signs, the diagnosis is difficult. In a third of this series the diagnosis was made only at necropsy. Stereoscopic roentgenography is of especial value when it shows obliteration of the psoas muscle margin on the side of the abscess or lateral spinal curvature away from the abscess. Moreover, when complicating subphrenic abscess is present, elevation and fixation of the diaphragmatic dome with costophrenic sinus obliteration is diagnostic. Technical urologic examination may be of no aid and, as they have twice seen, may actually confuse the diagnosis. The treatment is surgical drainage, although rarely a patient recovers without operation. Complications are of frequent incidence and involve the pulmonary and genito-urinary systems in particular. Of fifty-four patients operated on for perineal abscess, eleven died, an operative mortality of 20.4 per cent. It is noteworthy that most of these fatalities were directly due to complications and the surgical treatment rather than to the primary abscess.

Primary Carcinoma of Fallopian Tubes. — Holland asserts that carcinoma of the fallopian tube is not as rare as was formerly believed. Inflammatory changes in the fallopian tubes do not deserve the etiologic significance relative to carcinoma attributed to them by many writers. The proper diagnosis of carcinoma of the fallopian tube can be arrived at only by macroscopic and microscopic examination. From sections examined it would seem that papillary alveolar and alveolar types are advanced stages of primary papillary malignancy. Nine cases are reported.

Surgery of Diabetes.—The circular amputation of Kocher is recommended by Maes for diabetic gangrene of the lower extremities, and the gridiron incision is recommended for the treatment of carbuncles of the neck.

Method of Reconstruction of Axilla for Contracture. —In the method employed by Garlock for reconstruction of the

axilla, done in stages and consisting essentially of the transplantation of skin flaps from a distance with maintenance of their blood supply through tubed flaps which are in turn utilized in the reconstructive procedure, vertical suture lines are avoided.

Resection of Renal Pelvis for Hydronephrosis. — In eleven cases of hydronephrosis, resection of the renal pelvis was performed by Walters. In eight cases (nine resections) the results of operation were excellent. In four of these cases hydronephrosis was bilateral, and the renal pelvis was large and infected. Bilateral resection was done in one case, with an inferval of three months between operations, with excellent results. It has been almost two years since these operations were performed, and the patient has been completely relieved of all symptoms of renal retention or obstruction. This is probably the first successful case in which resection of bilateral infected hydronephrotic kidneys has been reported. In three additional cases of bilateral hydronephrosis, successful resection of one hydronephrotic renal pelvis has been performed. Three months will elapse before the other renal pelvis is resected. Cases of hydronephrosis in which successful results followed division of anomalous blood vessels or connective tissue sheaths are not included in this series of pelvic resections. Three cases in which resection of the renal pelvis was performed required secondary nephrectomy due to (1) persistent urinary fistula from occlusion of the ureter by postoperative infection around the ureter, and (2) pyelonephritis with cortical abscesses in two cases in which urine was being transmitted successfully from the resected renal pelvis to the bladder through the ureter. Complete recovery followed nephrectomy. When postoperative stasis occurred in the renal pelvis, it was successfully relieved by the introduction of an indwelling ureteral catheter through the cystoscope, where it was retained as long as the retention persisted. In spite of leakage of urine from the anastomosis with perirenal accumulation, results may be satisfactory provided drainage is sufficient.

Transplantation of Head and Shaft of Fibula to Humerus. — Behrend reports a case discussed here dealing with nonunion of a comminuted fracture of the humerus followed by a low grade type of osteomyelitis due no doubt to the various kinds of material used to hold the fracture in place to assist in the union of the two fragments of the humerus. Numerous trials at reduction were made but without success. Many types of splints in addition to plaster casts were used but failed to keep the fractured ends together. It required six open operations before success was attained. Behrend used Parham bands on two occasions, a Sherman plate, a tibial bone graft, and finally the fibular graft. The patient now has a good arm, the flail arm being replaced by a firm one—which is useful although the range of movement is somewhat reduced as compared with the normal. There is also some radial nerve palsy, which is mending slowly.

Injuries to Semilunar Cartilages of Knee Joint.—Henderson says that if repeated locking has occurred, or if the complaint cannot be relieved in primary cases by manipulation, and the condition is causing inconvenience to the patient, other things being equal, there is no reason for withholding the benefits of operation, and the offending meniscus should be removed. General anesthesia is favored, but the operation can be carried out under local anesthesia by the infiltration method about the knee or a combined caudal and spinal injection. The latter has the advantage over the infiltration method as it permits the use of the tourniquet. Of the 256 patients 238 have been traced; 183 are relieved of all trouble; 34 are improved, and 21 are not improved; thus, 91 per cent were cured or markedly improved. There have been no fatalities in the series, and no infection more serious than a low-grade skin infection in a few of the cases. There were forty-two cases in which, at the time of operation, the lesion present was not sufficient to account for the patient's symptoms, but because of the definite subjective symptoms the meniscus was removed. Thirty-five patients were traced. Thirteen (37 per cent) were cured, eight (23 per cent) were improved, and fourteen (40 per cent) were not improved.

Hypertrophic Osteartbritis of Spine.—Eighty unselected patients over 40 years of age were studied by Cottrell to determine the incidence of osteartbritis of the spine and the frequency of an associated radicular syndrome. Of these, 44 per cent showed evidence of hypertrophic osteartbritis. The average age of the patients was 55.6 years. The dorsolumbar region was the most often involved. Throat cultures from the forty-four showing osteartbritis did not yield *Streptococcus cardioarthritidis* in any instance. Focal infection was present in 56 per cent of all cases and in 68 per cent of cases showing osteartbritis. Twenty-five, 31 per cent, showed by neurologic examination evidence of pressure on the spinal nerve roots. In seventeen, 21 per cent, no symptoms were found attributable to the arthritis. Eight, 10 per cent, had the radicular syndrome in which the complaint was entirely due to this condition. Four of the eight had osteartbritis, whereas four had none visible to the roentgen ray. Of the eight patients with the radicular syndrome, five had been operated on without relief. In five the radicular syndrome simulated visceral disease.

Texas State Journal of Medicine, Fort Worth

26: 469-546 (Nov.) 1930

Headache. R. E. Parrish, San Antonio.—p. 477.
Periodic Health Examinations. W. S. Hanson, San Antonio.—p. 482.
Classification, Diagnosis and Treatment of Arthritis. J. W. Torbett, Marlin—p 485
Significance of Hematemesis A. B. Rivers, Rochester, Minn.—p. 492.
Diagnosis of Acute Intra-Abdominal Surgical Conditions. J. Becton, Jr., Greenville.—p. 499.
Perforated Peptic Ulcer. G. T. Hall, Big Spring.—p. 502.
Why Do We Drain Abdominal Cavity in Peritoneal Infection? E. P. Hall, Sr., Fort Worth.—p. 505.
*Malignant Growths of Stomach. P. Brindley, Galveston, and P. S. Wolfe, Abilene.—p. 510.
*Value of Complement Fixation Test in Tuberculosis. T. C. Terrell, Fort Worth.—p. 512.
Sexual Neurosis. F. H. Shaw, Marlin.—p. 513.
Recognition and Treatment of Poliomyelitis in Preparalytic Stage. C. O. Terrell, Fort Worth.—p. 517.
Specific Dilation of Capillaries, Alias Hyperthyroidism. I. L. Van Zandt, Fort Worth.—p. 520.
Treatment of Lobar Pneumonia. H. W. Cummings, Hearne, and H. W. Cummings, Jr., Houston.—p. 521.
Influenza: Comparative Experience in Two Epidemics. J. M. Frazier, Belton.—p. 523.
Idle Thoughts on Tissue Diagnosis. V. H. Keiller, Houston.—p. 525.

Malignant Growths of Stomach.—Among 2,612 necropsies reviewed by Brindley and Wolfe there were 57 instances of malignant growths involving the stomach, a percentage of 2.14. A study was made of the period of time intervening between the onset of symptoms and death. Of those cases in which this could be determined, 71.9 per cent of the patients lived less than a year after the symptoms began; 18.8 per cent lived between one and two years, and 9.3 per cent lived over two years. Approximately half of the patients whose previous history could be determined did not mention having any gastric trouble. In studying the mode of onset of the gastric disturbances they found that 78.6 per cent showed gradual onset of symptoms, while in 21.4 per cent the onset was sudden. The earliest symptoms given at the onset of the terminal illness were vomiting and pain, equally common; next in order of frequency were epigastric discomfort, weakness, and loss of weight. Pain was present sometime during the illness in 67.6 per cent of the cases. Food caused increase of pain in half the cases. Vomiting was present at some time during the course of the disease in approximately two thirds of the cases. Of those cases in which vomiting had occurred, 47.4 per cent gave a history of the vomitus at some time having been bloody or coffee ground in character. Constipation was present in 77 per cent; diarrhea in 11.5 per cent, while a normal condition of the bowels was present in 11.5 per cent of the cases. Physical examination revealed emaciation in 91.4 per cent of the cases; 5.77 per cent well nourished, and 2.9 per cent obese. Abdominal palpation revealed an epigastric mass in 45 per cent and tenderness in 37 per cent of cases. Summation of laboratory observations showed free hydrochloric acid 10 or less in 84.2 per cent. Total acidity was below 10 in 40 per cent of cases. Lactic acid was present in three fourths of the cases. Gross blood was present in a little more than a third, and occult blood in 72.3 per cent. Boas-Oppler bacilli were found in 40 per cent of cases; 71.4 per cent of the cases were diagnosed as gastric malignancy; 26.3 per cent were diagnosed as some other condition, while in one case no diagnosis was made. At necropsy, 90 per cent of tumors were found to be primary

in the stomach. Of the other cases, two first appeared in the esophagus, one started as a melanosarcoma of the eye, and one as a sarcoma of the thigh. In three fourths of the cases the tumor site was in the pyloric region of the stomach and near the lesser curvature. Secondary deposits from primary growths in the stomach occurred in the following order of frequency: lymph nodes, 75 per cent; liver, 55 per cent; peritoneum, 22 per cent; lungs, pancreas and kidneys, each 17 per cent; omentum, 14 per cent; intestine, 10 per cent; diaphragm and pleura, each 8 per cent; bone, 6 per cent; esophagus, retroperitoneal glands and suprarenals, each 5 per cent; duodenum, 1 per cent. Microscopic examinations of the malignant tissues show an adenocarcinomatous arrangement of the cells to be slightly more frequent than a cell mass of simplex arrangement. In two cases mucinous degeneration of the tumor cells was present, these cases being typical colloid carcinomas.

Value of Complement Fixation Test in Tuberculosis.—Terrell has found that carefully conducted complement fixation tests should yield from 60 to 70 per cent positive reactions in cases of tuberculosis, depending on the stage of the disease. The test acts as a stimulus to more careful observation, and as an aid only when considered in conjunction with a complete history and physical investigation.

Wisconsin Medical Journal, Madison

29: 609-682 (Nov.) 1930

Paraffin-Wax Treatment of Burns. C. K. Cook, Madison.—p. 609.
Nontuberculous Pulmonary Disease Simulating Tuberculosis. A. L. Banyai, Wauwatosa.—p. 613.
Meningococcus Meningitis; Combined Cisternal and Lumbar Treatment. M. J. Fox, Milwaukee.—p. 620.
*Treatment of Diabetes Tested by Stress and Strain of Life. S. C. Fain, C. C. Edmondson and W. E. Nicely, Waukesha.—p. 623.
Physical Therapy in General Practice. J. S. Coulter, Chicago.—p. 627.
Meningioma of Sphenoid: Case. F. J. Hodges, Madison.—p. 632.
Cystadenoma of Gallbladder: Case. R. A. Kordenat, Chicago.—p. 634.
Acute Intestinal Obstruction Due to Large Gallstone: Case. J. A. Jackson and G. H. Ewell, Madison.—p. 637.
Recurrent Appendiceal Fistula Following Drainage of Appendiceal Abscess: Case. V. F. Marshall, P. L. Heitmeyer and M. E. Swanton, Appleton.—p. 639.

Treatment of Diabetes Tested by Stress and Strain of Life.—The kind of foodstuffs, rather than the number of grams and calories of food principles, has been the diet prescription used by Fain et al. for a number of years. The results have been so encouraging that they believe them unequaled. Foundation of the diet is green vegetables two or three times a day, fruits (preferably fresh fruits) twice a day, fresh meat (rather animal protein, whether fish, fowl, eggs or cheese), cream and butter. Cereals and potatoes are added if the tolerance of the patient for blood sugar producing foods will permit. Each serving of fruit is limited to an amount that contains approximately 12 Gm. of carbohydrate; vegetables, six or nine tablespoonfuls of 3 per cent three times a day and six or nine tablespoonfuls of 6 per cent twice a day. One or more of these vegetables should be raw. Two or three ounces of meat or its equivalent in fish, fowl, eggs or cheese three times a day; the fat, besides that in the meat daily, is given in 20 per cent cream and in butter given as such or in soup and on vegetables. Oil dressing is given on salad. To this is added for the diabetic patient, three times a day, one, two or three palatable muffins. For a muffin or muffins, a doughnut, cracker, piece of cake or some pleasing substitute may be given. Each muffin contains approximately 2 Gm. each of carbohydrate, protein and fat. If this is not enough food to keep the patient on his feet and at his usual occupation, potatoes and cereals are added to meet the energy requirements of the individual. If the patient can handle the maintenance amount of food for him and keep the urine sugar free and the blood sugar within fairly normal limits, insulin is not given. If the maintenance amount of food is not so taken care of, insulin is given once, twice or three times a day. With this outline of diet as a basis, it is only exceptional cases that require as much as 60 units of insulin a day. When dealing with an individual whose maintenance is below the ordinary diet as given here, the authors have found that it is most satisfactory to decrease the fat first and then, if necessary, the protein before any lowering of the fruits and vegetables is attempted.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 671-716 (Oct. 25) 1930

Birth of Chemical Biology. J. B. Leathes.—p. 671.
*Anesthesia for Operations on Gravid Uterus. H. W. Featherstone.—p. 676.
Diagnosis of Undulant Fever. G. S. Wilson.—p. 679.
Hydronephrosis Due to Kinking of Upper End of Ureter: Five Cases. R. P. Rowlands.—p. 681.
Significance of Reflex Action in Color Vision. F. Allen.—p. 683.
*Outbreak of Food Poisoning in Staffordshire: I. Clinical Manifestations. E. S. Clayton and V. E. Milne.—p. 684.
Id.: Bacteriologic Investigation. J. Menton.—p. 685.
Intestinal Obstruction: Two Cases. R. G. Clements.—p. 687.
Perforation of Duodenal Ulcer When Flying. F. Twigg.—p. 687.

Anesthesia for Operations on Gravid Uterus.—Featherstone is of the opinion that gas-oxygen is the best agent for general anesthesia for obstetrician and gynecologist. Spinal analgesia has an important place in the technic of cesarean section. Hysterectomy of the gravid uterus in the later stages of pregnancy is a severe procedure. Most frequently the operation is called for in the presence of concealed accidental hemorrhage, or for severe sepsis in the pelvic organs. It is one of the most anxious operations of surgery. The patient is toxic, suffering from shock, and bloodless. The more powerful anesthetic agents, chloroform and ether, disturb the patient too much; their use is followed by serious postoperative reaction, and pneumonia or failure of the heart or kidneys may follow. Spinal analgesia may produce a dangerous fall in blood pressure in a patient who is already nearly pulseless. Gas-oxygen is a most valuable aid. Eight cesarean hysterectomies were performed under gas and oxygen for concealed accidental hemorrhage; each patient was nearly in a dying condition when the operation was commenced. One patient died half an hour after the operation was completed; one died on the sixteenth day, but the remaining six recovered.

Outbreak of Food Poisoning in Staffordshire.—Clayton and Milne describe some characteristics of a hog cholera bacillus which was responsible for an outbreak of food poisoning. The main features were the presence of two subtypes, and the high serologic specificity of the cultures when the organisms were at first isolated. There were eight cases in this series with three fatalities.

2: 717-762 (Nov. 1) 1930

Sleep and Its Disorders in Childhood. H. C. Cameron.—p. 717.
Glioma Group Studied by Ordinary Histologic Methods. W. Boyd.—p. 720.
Value of Roentgen Diagnosis in Medicolegal Cases. A. H. Pirie.—p. 722.
*Tuberculosis and Public Health. A. S. M. MacGregor.—p. 724.
*Personal Experiences in Midwifery. R. K. Ford.—p. 726.
Syphilis of Nervous Parenchyma. R. B. Hawes.—p. 728.
Torsion and Gangrene of Tube Complicating Uterine Prolapse. J. B. G. Muir.—p. 730.
Atypical Forms of Cerebrospinal Fever. E. Thorp.—p. 731.

2: 763-806 (Nov. 8) 1930

Medical Aspects of Thoracic Surgery. R. A. Young.—p. 763.
Radium in Cancer Therapy. D. Quick.—p. 765.
Decerebrate Rigidity in Man. J. S. Manson and F. R. Ferguson.—p. 769.
Cyst of Urachus: Case. A. Ronald.—p. 771.
Organic Gastric Syphilis. D. Smith.—p. 773.
Large Cystic Tumor (Angio-Endothelioma) of Soft Palate. J. E. G. McGibbon.—p. 776.
Delayed Operation for Traumatic Intracerebral Hemorrhage. D. K. Sabhesan.—p. 777.
Unusual Case of Stiff Knee. D. Kyle.—p. 777.
Suicide in Postencephalitis Epidemica. T. McC. Montford.—p. 778.
Raynaud's Disease: Case. W. Broadbent.—p. 778.
Glandular Fever: Case. L. S. Woolf.—p. 779.

Tuberculosis and Public Health.—MacGregor says that in Glasgow practically no impression is being made on the death rate from phthisis affecting young adults of either sex between 15 and 25 years of age. This type appears to have remained unaffected in both incidence and severity. On the other hand, a remarkable fall in phthisis at later ages has taken place in both sexes, most markedly among women. It would appear as if tuberculosis were rapidly declining as a chronic disorder of the middle-aged but remaining unaffected as an acute disorder of young adults. Till within recent years Scot-

land has had a relatively high incidence of nonpulmonary tuberculosis. For one thing, it is said that dairy herds in this country have ten times as much tuberculosis as those in America. Whatever is the reason, however, since the first decade of the century the death rates from these forms of the disease have declined at a more accelerated pace compared with the rate of fall for the pulmonary form. As regards mortality, tuberculous meningitis is one third, abdominal tuberculosis one fifth, and other forms two fifths of the rates then prevailing. Along with this, there has been noticeable a decided diminution in the severity assumed by the various forms of tuberculosis at the younger ages of life, applying particularly to glandular and abdominal disease, but also to bone and joint disorders, which are showing less tendency to rapid abscess formation, while amyloid disease is now seldom encountered. The greatest fall has taken place in abdominal tuberculosis—a fact of considerable significance, as this disorder is mostly bovine in origin. Although something has been accomplished under the Tuberculosis Order in eliminating grosser disease from among dairy herds, such a wholesale improvement can scarcely be credited to this cause. It appears much more likely that the greatly increased practice of pasteurization of ordinary city milk, to which from 80 to 90 per cent of the supply has been subjected for some years, has interposed a degree of protection against transmission of this form of tuberculous infection.

Personal Experiences in Midwifery.—After five years' experience with mercurochrome in glycerin, Ford considers that this is a reliable, harmless and absolutely efficacious antiseptic as far as the endometrium is concerned, and, possibly, for all mucous membranes. The suggestion is made that 1/100 grain (0.6 mg.) of scopolamine in 2 cc. of sterile 50 per cent magnesium sulphate solution is a safe and fairly effective analgesic for labor.

Journal of Pathology and Bacteriology, London

33: 849-1183 (Oct.) 1930

Importance of Venous Invasion in Development of Metastatic Tumors in Liver. R. A. Willis.—p. 849.

Spirillum Minus Derived from Spontaneous Infection in Mouse: Pathogenicity as Means of Differentiating It from Strains in Rat. J. A. W. M'Cluskie.—p. 863.

Bacteremia Following Operations on Urethra. F. J. F. Barrington and H. D. Wright.—p. 871.

Pharmacologic Action of Exotoxin of Staphylococcus Aureus. C. H. Kellaway, F. M. Burnet and F. E. Williams.—p. 889.

Reactions of Cells in Pleural Effusions to Supravital Neutral Red. R. A. Hickling.—p. 913.

Reactions of Human Skin to Horse Serum. C. E. Kellett and H. D. Wright.—p. 917.

Effect of Immunization on Temperature Response in Rabbits. H. D. Wright.—p. 925.

*Staining of Calcium. G. R. Cameron.—p. 929.

*Pathologic Changes Found in Fatal Case of Psittacosis. G. H. Wilson.—p. 957.

Isohemagglutinins: Influence of Fetus on Titer of Mother's Blood During Pregnancy. K. Edgecombe.—p. 963.

Anaphylactic Responses of Guinea-Pig's Skin. C. E. Kellett.—p. 981.

Schilder's Encephalitis Periaxialis Diffusa in Rhesus Monkey. J. R. Perdrau.—p. 991.

*Persistent Eosinophilia. A. M. Drennan and J. H. Biggart.—p. 995.

Pathologic Action of Light. A. G. Levy.—p. 1003.

*Tuberculosis of Stomach: Case. E. R. Cullinan.—p. 1013.

*Influence of Liver Extract Effective in Pernicious Anemia on Diameter of Erythrocytes in Experimental Anemias. G. P. Wright and B. Arthur.—p. 1017.

*Sacral Chordoma with Widespread Metastases. R. A. Willis.—p. 1035.

Influence of Testicular Extract on Dermal Permeability and Response to Vaccine Virus. D. McClean.—p. 1045.

Necrotic Sequestration of Kidneys in Pregnancy (Symmetrical Cortical Necrosis). W. de M. Scriver and H. Oertel.—p. 1071.

Coal-Miner's Lung. S. L. Cummins and A. F. Sladden.—p. 1095.

*Pathogenesis of Experimental Poliomyelitis: Inoculation into Sciatic Nerve. E. W. Hurst.—p. 1133.

Types of Tubercle Bacilli Occurring in Sputum of Phthisical Persons. A. S. Griffith.—p. 1145.

Direct Platelet Counting. H. K. Goadby.—p. 1171.

Individuality in Size of Red Cells. C. Price-Jones.—p. 1173.

Staining of Calcium.—Alizarin in Cameron's opinion is a nearly specific stain for calcium. It reacts readily in vitro and in vivo with recently deposited calcium phosphate or carbonate, normal or pathologic, but often fails to stain older deposits. This limits its practical utility.

Pathology in Fatal Case of Psittacosis.—In the case described by Wilson the lung changes are those of a pneumonia of unusual type, which does not correspond to any ordinary pneumonia, whether occurring as a primary disease or as a secondary complication. The general picture is that of a septicemia accompanied by distinctive changes in the lungs. These are, in the order of their occurrence, congestion with abundant serous exudation, which ultimately becomes fibrinous; degeneration and desquamation of the epithelium lining the air vesicles and bronchi, and thrombosis of capillaries or actual necrosis of the walls of the air vesicles in areas where the damage is more severe, with hemorrhage in places. A relative absence of polymorphonuclear leukocytes is a striking feature and is consistent with the leukopenia observed clinically and with the microscopic appearances of the bone marrow. The histologic picture suggests that the changes in the lungs may be the result of intense toxic damage rather than an inflammatory reaction, but it is of course possible that this is an extreme example in which the marrow was almost completely inhibited and that less severe cases might show a different response. The occurrence of a terminal bronchopneumonia, however, shows that a leukocytic reaction to pyogenic infection was still possible, and as the changes in this area are so strikingly different from those in the main lesions it would appear reasonable to suggest that the lesion in psittacosis is characteristically not accompanied by reaction on the part of the polymorphonuclear leukocytes, except where secondary pyogenic infection has occurred. It would appear also that such changes as have been described are an adequate explanation of the peculiar "silence" of the lung that has been observed in typical cases. Bronchopneumonia may undoubtedly occur, but this is probably the result of secondary pyogenic infection and not an essential feature of the disease.

Persistent Eosinophilia.—A case of persistent eosinophilia with splenomegaly and massive infiltration of the iliopsoas muscles is described by Drennan and Biggart. A suggestion is made that the syndrome "persistent eosinophilia and splenomegaly" may possibly be a functional disease—an expression of an excessive response on the part of the eosinophil to some as yet unidentified irritant.

Tuberculosis of Stomach.—In the case reported by Cullinan, diagnosis was not possible during life. No primary focus of infection was discovered, nor were there other tuberculous ulcers in the intestinal tract. There was recent pleurisy with adhesions over both lungs. The surfaces of the lungs were studded with miliary tubercles, and the cut surfaces showed generalized miliary tuberculosis. No primary or old tuberculous focus was found in the lungs, and the bronchial glands were unaffected. On the lesser curvature of the stomach, near the cardiac end, was a shaggy soggy mass, like neither a simple nor a malignant ulcer, but looking as though it might be tuberculous. Along the lesser curvature was a chain of enlarged glands. In the cecum there was a transverse ulcer, but all the other abdominal organs appeared natural. It was evident that the miliary disease of the lungs was more recent than the lesion in the stomach, and an effort was made to find a primary focus but without avail.

Liver Extract Effective in Pernicious Anemia.—It is suggested by Wright and Arthur that liver extract acts in pernicious anemia by promoting the due degeneration of the megaloblastic phase of erythropoiesis.

Sacral Chordoma with Widespread Metastases.—The primary tumor in Willis's case was one of the largest, if not actually the largest, so far described. It weighed approximately 200 ounces (5.6 Kg.). Prolific remote metastases, probably due to tumor invasion of the iliac veins, were present in the lungs, heart, liver, spleen, kidneys, thyroid and skin. There were numerous exostoses of many bones. The possibility that these and the chordal tumor may both be expressions of a constitutional tendency to skeletal anomalies is discussed.

Pathogenesis of Experimental Poliomyelitis.—The course of poliomyelitis following intrasciatic inoculation is described by Hurst. The order of appearance of virus and lesions in the various regions of the central nervous system accords with the view already expressed that the axons are the main transmitting structures in the disease. The cerebrospinal fluid plays a subsidiary part in the dissemination of the virus, which may on occasion be detected in the fluid.

Lancet, London

2: 945-1000 (Nov. 1) 1930

*Value of Alkalis in Treatment of Chronic Nephritis. A. A. Osman.—p. 945.
Burns and Scalds. C. Donald.—p. 949.
Paralysis of Capillary Blood Vessels of Hand Following Wounds of Forearm. H. Burrows.—p. 952.
Effect of Added Iron on Hematopoietic Properties of Dried Milk. A. L. Bacharach.—p. 957.
Manganese in Foodstuffs. A. E. Boycott and G. R. Cameron.—p. 959.
Intravenous Morphine in Coronary Thrombosis. F. Moor.—p. 959.

Value of Alkalis in Treatment of Chronic Nephritis.—Osman summarizes the results of this method of treatment in certain types of chronic nephritis during the past seven years. He says that alkalis may be used with advantage in many types of nephritis under certain circumstances, for either their prophylactic or their therapeutic value. They should never be used except with some specific object in view. The frequent practice of giving "small" doses in the hope that they "might do some good" is bad medicine and should be condemned. He reports only forty cases, which represent only a small proportion of those treated by this method and are, in fact, the first forty so treated in which the history of the illness was long enough (seldom less than six months, and in one case as long as fourteen years) to make spontaneous remission or improvement during treatment unlikely. With few exceptions, the symptoms were sufficiently severe to necessitate confinement to bed for at least three months before treatment was commenced. Further, most of them had previously been treated by the usual methods—such as sweating, purgation, salt depletion, urea, high protein diets, thyroid extract, purine diuretics, or decapsulation—without conspicuous success. The results of treatment have been judged chiefly by the effect produced on the immediate symptoms and the subsequent benefit to the patient. The mortality in the forty cases of this series, in a period of five years, was seventeen, or 37 per cent, while in a group of the first forty cases of as nearly the same types as could be found in the records over a similar period, treated by other methods, it was nineteen, or 43 per cent. The similarity in the mortality rates of the two groups is interpreted as signifying that the cases selected for this review constitute a fair sample of severe types of chronic nephritis. The chief value of alkalis in the treatment of nephritis consists in their action in promoting diuresis and thus ridding the tissues of excess water or edema. Therefore, they have been found of most use in cases of chronic nephritis accompanied by considerable amounts of edema and oliguria—i. e., in chronic parenchymatous and chronic "mixed" nephritis, in which dropsy not due to an associated heart failure is the most prominent symptom. As some decrease in the plasma bicarbonate appears to be the rule in all types of chronic nephritis, it seems reasonable to suppose that alkalis, by increasing the blood bicarbonate, might be of some value. It has also been found that if alkalis, in the form of equal parts of potassium citrate and sodium bicarbonate, are given by mouth, in amounts sufficient to raise the plasma bicarbonate to, and to maintain it at, a normal level under all circumstances of diet and exercise, it is often possible to induce a diuresis sufficient in degree and duration to rid the body entirely of edema. If, after the edema has subsided, the dose is readjusted to that which will, under the new conditions, maintain the plasma bicarbonate at a normal level, the edema often does not return. Of the forty cases, six were labeled acute parenchymatous nephritis. The remaining cases were of the chronic parenchymatous or chronic "mixed" varieties, and all the patients were suffering from marked edema, which had been persistently present since the onset of the illness. Cases in which there was a history of spontaneous remission of the edema have not been included. In thirty-six of the forty cases, a sufficient diuresis was produced and maintained to cause complete disappearance of the edema. In only four cases did the treatment fail to influence the edema at all. Of the thirty-six cases in which the edema disappeared under treatment, it recurred in four, while active treatment was still being pursued. In these cases it was not found possible to maintain a sufficient diuresis for a long enough period to control the edema. In thirty-two out of the forty cases, therefore —i. e., in 80 per cent—it was possible to obtain complete and lasting control over this symptom. The average period occupied by the treatment was from six to eight weeks.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 1435-1481 (Oct. 20) 1930

Syncopes of Vasomotor Origin. C. Lian.—p. 1443.
Inoculation of Blood and Urine of Two Patients with Lymphogranulomatosis. M. Loeper and A. Lemaire.—p. 1444.
*Postvaricella Purulent Meningitis with Cortical Reaction. Laignel-Lavastine, A. Miget and S. Constantinesco.—p. 1448.
Pyloric Tumor of Prolonged Febrile Evolution. F. Masselot.—p. 1453.
Contralateral Pneumothorax. E. Mantoux.—p. 1456.
Action of Ultraviolet Rays on Cholesterol Content of Serum. M. Loeper and R. Degos.—p. 1458.
*Vaccinotherapy in Acute Articular Rheumatism. M. Loeper and R. Degos.—p. 1463.
Gonococcic Reaction in Diagnosis of Subacute and Chronic Rheumatism. A. Léri, A. Urbain, J. A. Lièvre and J. Weill.—p. 1471.

Postvaricella Purulent Meningitis with Cortical Reaction.—Laignel-Lavastine et al. report a fatal case of purulent meningitis with cortical reaction, subsequent to varicella. The patient, a youth, aged 18 years, convalescent from a seemingly benign attack of varicella, presented a febrile meningeal syndrome with convulsions. The topography of the meningeal lesions, predominant in the anterior and lower parts of the left hemisphere, explains the special symptoms observed: frontal cephalalgia, more marked on the left, left ptosis with anesthesia in the region of the frontal nerve, and epileptiform attacks beginning in the right side of the face. The patient died within three days. There was no local source of infection that could explain the etiology of the meningitis. The hypothesis of a tuberculous origin was eliminated by examination of the cerebrospinal fluid for tubercle bacilli and by inoculation of guinea-pigs. Bacteriologic examination and cultures of the vesicles of the varicella did not reveal any microbial elements that could explain a theory of meningitis by distant secondary infection. It seems logical, therefore, to consider the meningitis in this case as the direct result of the varicella, probably caused by a neurotropic virus, independent of the particular conditions of virulence. The authors consider this case another example of the nervous localizations that are observed in rare instances during the course of or subsequent to varicella.

Vaccinotherapy in Acute Articular Rheumatism.—Loeper and Degos describe ten typical cases of acute articular rheumatism in which they used vaccine treatment. All the patients had resisted treatment by sodium salicylate. The method used was as follows: Preliminary intradermoreaction tests were made with streptococcus, staphylococcus, pneumococcus and gonococcus vaccines. In seven cases a definite positive reaction to one or more of the vaccines was observed; namely, one staphylococcic, one streptococcic, one gonococcic, one mixed streptococcic and gonococcic, and three streptococcic-staphylococcic. Six of the seven patients were cured by injections of the vaccines to which they had shown a positive intradermoreaction. The seventh, who had shown a rather mild reaction to streptococcus vaccine, was cured by a combination of sodium salicylate with the vaccine. The authors feel that these results justify making a preliminary intradermoreaction test in cases that do not yield to sodium salicylate so that vaccinotherapy may be employed when a positive reaction is secured.

Nourrisson, Paris

18: 273-336 (Sept.) 1930

History of Home for Needy Children of Paris. A. B. Marfan.—p. 273.
*Treatment of Habitual Vomiting and of Congenital Stenosis of Pylorus. A. B. Marfan.—p. 289.

Treatment of Habitual Vomiting and Congenital Stenosis of Pylorus.—In Marfan's opinion, most cases of continuous vomiting in nurslings are either simple examples of a disease of habitual vomiting or are due to a congenital hypertrophic stenosis of the pylorus. Since the second diagnosis can be made only after clinical observation during several days and after roentgen examination, the best procedure is first to apply the treatment for ordinary habitual vomiting. This consists of careful attention to diet and general hygienic conditions and also of specific antisyphilitic and antiemetic treatment. It is necessary, above all things, to nourish the infant sufficiently to avoid dangerous conditions of inanition. The mother's milk is the best food in most cases, and only in rare instances does a child show absolute intolerance of it. Ass's milk is the next choice. If it is not available, however, separated cow's milk

with a little sugar may be used, as well as various equivalent preparations of condensed or powdered milk. Bouillon and gruel of cereals and vegetables may be given to children more than 3 months of age. The meals should in general be small and frequent, the quantity of nourishment and the intervals between repasts being increased as the treatment progresses. The nourishment should usually be given with a spoon in order to determine the exact amount ingested and to avoid suction, and the liquid should be cold or even iced. In some cases, if the nourishment meets with complete intolerance when so administered, it is necessary to give it drop by drop on the infant's tongue. Extreme care should be taken to insure the most comfortable conditions for the patient—quiet, fresh air, soft light, often a complete change of environment. Since congenital syphilis is often the source of habitual vomiting in nurslings, antisyphilitic treatment, usually by mercury, should be given, which in many cases brings immediate relief. Antiemetic treatments such as enemas and antidyspeptic medicaments, especially bismuth subnitrate, are also valuable in ordinary cases. In the severe forms of the disease, antispasmodic medicaments should replace antidyspeptics; tincture of belladonna is recommended. If after about ten days the general treatment is of no avail, surgical intervention is usually necessary. If tubage shows a prolonged gastric stasis, and if it shows alimentary residues in the stomach more than four hours after the last meal, the existence of a pyloric stenosis is almost certain. This may be determined by roentgen examination, after ingestion of a bouillon containing a bismuth or barium salt, which clearly reveals impermeability of the pylorus. The diagnosis once established, the operation should be performed as soon as possible. In most cases a longitudinal extramucosal pylorotomy will be the most effective and safest method. However, when this seems insufficient, because of some circumstance such as the extreme hardness of the tumor, a gastro-enterostomy may be used with excellent results.

Presse Médicale, Paris

38: 1361-1376 (Oct. 8) 1930

*Insulin in Treatment of Cardiac Insufficiency. M. Loeper, A. Lemaire and R. Degos.—p. 1361.
*Therapeutic Action of Sugar in Cardiac Insufficiency. N. Kisthinios and D. M. Gomez.—p. 1363.
*Use of Physostigmine Salicylate for Regularization of General Anesthesia. L. Garrelon, G. Pascalis and L. Thuillant.—p. 1365.

Insulin in Treatment of Cardiac Insufficiency.—Loeper et al. advocate the use of insulin combined with dextrose in the treatment of cardiac disturbances. They find that when administered alone it relieves cardiac insufficiency, that it considerably reenforces and prolongs the action of other cardiants, and that it also aids in the specific treatment of syphilis. The action of insulin thus used is twofold: it acts directly on the nutrition of the myocardia and also produces equilibrium of the two functions of glycolysis and glycogenesis. In their experiments the authors used insulin both alone and in connection with other medicaments. Subcutaneous injections of from 5 to 10 units of insulin were given each morning. Fifteen or twenty minutes later the patients were given 100 Gm. of dextrose syrup (about 50 Gm. of dextrose). The immediate results of the injection were a sensation of fatigue, followed shortly by a marked sensation of increased physical resistance. The effects on the arterial tension and cardiac rhythm were noticeable after about the third injection.

Therapeutic Action of Sugar in Cardiac Insufficiency.—Kisthinios and Gomez describe several cases of cardiac insufficiency that had resisted treatment by ouabain and digitalis and in which immediate amelioration was produced and the patients were eventually cured by the administration of dextrose and insulin. Daily doses of 80 Gm. of saturated dextrose syrup were given, and twenty minutes later 4 units of insulin was injected. A lactovegetarian, dechlorinated diet was maintained. Although dextrose, like digitalis, sometimes acts as a diuretic, its pharmacodynamic action is due to its direct effect on the muscles of the heart, since it is efficacious in many cases in which the quantity of urine is already abnormally high. Moreover, the effect of dextrose on the cardiac muscles has long been established through numerous experiments. The authors suggest that a combined treatment with dextrose and ouabain might be valuable, analogous to the combination of ouabain and digitalis that has been used in certain cases in which digitalis alone had been inefficacious.

Physostigmine Salicylate for Regularization of General Anesthesia.—Garrelon et al. have found physostigmine salicylate a valuable aid in the anesthetization of patients who do not yield readily to ordinary anesthetics. Resistance to anesthesia may be predetermined by the fact that in such patients ocular compression either does not influence the pulse rate or causes an acceleration. In anesthetizing one series of patients the authors gave a preliminary subcutaneous injection of pantopium hydrochloricum. Half an hour later they administered ether or chloroform. If the patient did not yield to the anesthetic they then injected 0.5 mg. of physostigmine salicylate. Within one or two minutes the respiration was regularized and agitation ceased, although the patients continued to talk and laugh freely. The abdominal wall was completely relaxed, however, and the surgeon was able to perform any operation with security. As soon as the mask was removed the patients regained consciousness with exceptional rapidity and had no recollection of pain. In a second series of patients a preliminary injection, usually of morphine, was given, together with an injection of physostigmine salicylate. The patients were taken to the operating room in a condition that often permitted immediate intervention, without true psychic sleep. The authors suggest the development of this method for minor operations. The same action is produced by physostigmine salicylate in local anesthesia.

Revue Neurologique, Paris

2: 289-376 (Sept.) 1930

Disturbances in Speech in Course of Pseudobulbar Conditions. G. Lévy.—p. 289.
*Semeiologic Value of Distal Unipolar Electrical Stimulation in Dystonias of Extrapyramidal Origin. V. Néri.—p. 309.
*Primary Juvenile Paralysis Agitans. L. van Bogaert.—p. 315.
Blepharonystagmus. L. Benedek and E. de Thurzo.—p. 327.

Distal Unipolar Electrical Stimulation in Dystonias of Extrapyramidal Origin.—Cathodal stimulation of the lower extremity of the triceps, with the forearm at right angles to the arm, normally provokes extension of the forearm. Néri shows, however, that in dystonias of extrapyramidal origin distal excitation produces no contraction whatever at first; when the intensity of the current is slightly increased, it provokes a slow and progressive flexion of the fingers and hand, and at times a flexion of the forearm toward the arm. A similar reaction may be produced in the muscles of the leg. The diffusion of current thus observed is clearly distinguishable from diffusions due to perturbation of the peripheral motor neuron, because the contraction of the hand is slow and vibrant, whereas in diffusions of peripheral origin the contractions are brusque. It was observed that the application of heat, for instance a cloth dipped in water of from 40 to 50 C., is capable of transforming the flexion into a normal pronation. Cold applications, on the other hand, can cause a normal person to react with flexion of the hand. Since a temperature incapable of modifying the electrical excitability of the nerves or the muscular contractions is able to disturb the direct excitability of the muscles, and since consequently the action of heat and cold is manifest not on the myofibril but on the sarcoplasm, the author suggests that perhaps extrapyramidal dystonias have their origin in perturbations of the sarcoplasm linked with perturbation of the corpus striatum.

Primary Juvenile Paralysis Agitans.—Van Bogaert describes a form of juvenile paralysis agitans that may develop early (in the case reported at the age of 7), and that evolves slowly. There is a marked predominance of phenomena of the various excitomotors, an almost complete absence of hypertonia, and the precocious appearance of definite pseudobulbar symptoms. The tremor, in its graphic and clinical characteristics, is a true parkinsonian tremor. The disease is clinically distinct from Wilson's disease. It is difficult, however, if not impossible, to differentiate it from pseudosclerosis. In spite of clinical indications, the patients do not present hepatic lesions resembling those of hepatolenticular degeneration. From the anatomic standpoint there is a marked lesion of the pallidal system and a lesser lesion of the putaminocaudate system. The locus niger and Luys's body are affected by the degeneration.

The disease behaves as an abiotrophy essentially pallidal but susceptible to diffusion through other systems physiologically associated.

Schweizerische medizinische Wochenschrift, Basel

60: 909-932 (Sept. 27) 1930. Partial Index

*Gonin's Operation for Treatment of Detachment of Retina. P. Knapp. —p. 909.
Criticism of Popular Character Analysis. W. Morgenthaler.—p. 912.
Quantitative Determination of Urea in Blood and in Musculature Under Different Experimental Conditions. A. Rosenblatt.—p. 915.
Cure of Impulsive Idea by Single Physical Action or Cure of Suicide Idea by Reduction of Diastolic Pressure. J. Bonjour.—p. 919.
Conjunctivitis Caused by Ultraviolet Irradiation Cured by Administration of Calcium. R. Bárány.—p. 922.

Gonin's Operation for Treatment of Detachment of Retina.—Knapp points out that in most cases of detachment of the retina there also exists a fissure in the retina. Undoubtedly there is a causal relation between the fissure and the detachment; however, not every tear in the retina necessarily leads to detachment. Gonin was the first to utilize, in therapy, the relation between the fissure and the detachment. He has proved that if the fissure is closed by means of cauterization the detachment of the retina can be cured in many instances. It is essential that the operation be performed as early as possible. Of primary importance and at the same time the most difficult part of the operation is the correct location of the fissure. Advice is given as to how it may be most easily located. The operation itself is comparatively simple and is done following subconjunctival injection of procaine hydrochloride to which epinephrine has been added. A sclerotomy is performed and through the scleral opening cauterization is done. The cauterization into the vitreous body has the object to close the opening in the retina by means of reactive inflammation, and also to fix the retina to the wall of the eyeball. In the second part of the article the author describes three cases in which he employed the treatment successfully.

Annali Italiani di Chirurgia, Naples

9: 833-946 (Sept. 30) 1930

*Two Peculiar Cases of Renal Tuberculosis with Renal Exclusion. R. Pecco.—p. 833.
Variations of Lipemia in Chloroform and in Ether Anesthesia. A. G. Chiariello.—p. 853.
Serous Cysts of Kidney. G. Lino.—p. 865.
Hypochlorinemia and Sodium Chloride Treatment in High (Duodenal) Acute Intestinal Occlusions. G. Figurelli.—p. 878.
Structure and Growth of Movable Bodies in Joints. P. Franceschini and A. Magliulo.—p. 892.
The Testis Transplant. L. Sussi.—p. 921.

Renal Tuberculosis with Renal Exclusion.—Pecco brings out that the cases studied, while they represent two highly favorable courses of renal tuberculosis as a result of exclusion, confirm that so-called autonephrectomy is not synonymous with a clinical recovery, although it may constitute, or at least favor, a local recovery of the tuberculous process.

Archivio Italiano di Chirurgia, Bologna

26: 649-758 (Aug.) 1930

*Recklinghausen's Disease, or Osteitis Fibrosa. V. Ferrero and G. Cucco.—p. 649.
Pseudomyoma of Appendix. F. Zanardi.—p. 691.
*Gastroduodenal Ulcer in the Child. G. de Toni.—p. 703.
Cysts of Vermiform Appendix. T. Biancheri.—p. 730.
Resection of Lumbar Sympathicus. M. Ronzini.—p. 742.

Recklinghausen's Disease, or Osteitis Fibrosa.—Ferrero and Cucco bring out that osteitis fibrosa may occur in a localized or in a generalized form. To the former belong those cases with solitary bone cysts surrounded by fibrous tissue. The generalized form of osteitis fibrosa involves, however, various segments of the skeleton. The circumscribed form is found usually in young persons, while the generalized form attacks more commonly adults. The long bones are those most frequently attacked by the disease; then, in descending order of frequency, come the vertebrae, the bones of the base of the cranium, the upper and the lower maxillary, and, finally, the flat bones of the thorax and the pelvis; more rarely the metatarsals, the turbinals and the vomer. Of the long bones, the femur is involved in 38 per cent of the cases, the tibia in 22 per cent, and the humerus in 16 per cent. The etiology of Recklinghausen's disease is obscure and various authors advance different opinions. Recklinghausen thought that the disease was of an inflammatory nature, but he did not think that the inflammatory process had its seat in the bone marrow. The fibrosis of the bone marrow, which is the first change that appears, instead of being a process of recovery from the inflammatory disorder, must be regarded as similar in nature to that of malignant tumors, since it attacks and replaces more and more extensive areas of bone. In the localized type, a recovery is often effected after the breakdown of the cystic walls, so that some authors have suggested breaking up the cysts artificially as a mode of treatment. In other cases, puncture is employed or the cyst itself is opened. This treatment will not result favorably if the process of fibrous transformation in the bone marrow is very extensive. In that case, resection of the diseased area is advisable and is followed by the substitution of a piece of bone taken preferably from the patient himself. In the generalized form of the disease, many methods have been tried but without much success. The authors refer to a case of Recklinghausen's disease in a woman, aged 46, which was followed up for several years and carefully studied from the anatomopathologic and the clinical points of view. Various therapeutic measures were tried and a brilliant result was finally obtained by homoplastic transplantation of an ovary. Roentgen examination six months after the foregoing intervention revealed a better calcification, absorption of the cystic cavities, and excellent consolidation of the fractured area.

Gastroduodenal Ulcer in the Child.—De Toni summarizes various types of gastroduodenal ulcers in children and points out the relative frequency of so-called secondary ulcers, whereas primary ulcers are rare—the only ulcers comparable, as a clinical entity, to the round simple ulcer such as occurs in adults. The cases of such disease hitherto described, occurring in children under 12 years of age, are about forty in number. The author adds a personal observation concerning a child, aged 10, in whom, in the absence of all premonitory disturbances of the gastro-enteric apparatus, a syndrome appeared suddenly that, the author felt, justified him in the diagnosis of gastric ulcer. Profuse hemorrhages appeared, recurring several times, which led to the death of the patient, the surgeons having considered operative intervention inopportune. Necropsy confirmed the existence of an ulcer on the posterior wall of the stomach, near the greater curvature. Microscopic examination showed that the ulcer was probably of recent origin. Only two weeks had elapsed from the appearance of the first symptoms involving the gastro-intestinal tract, till death. After discussing the symptoms that justify a diagnosis of gastroduodenal ulcer, the author emphasizes that such ulcers in children tend to have a rapid clinical course. Therefore, when facing a sure, or even probable, diagnosis, it is imprudent to hesitate—surgical intervention should be resorted to without losing further time.

Clinica Pediatrica, Modena

12: 647-738 (Aug.) 1930. Partial Index

*Electrocardiogram in Congenital Heart Diseases in Children. I. Soriani. —p. 647.

Electrocardiogram in Congenital Heart Diseases in Children.—Soriani describes the method and technic used in his electrocardiographic study of nineteen children aged from 4 months to 12 years. In the interpretation of his results, the author excludes two cases (one of primary cardiomegaly in which the electrocardiograms yielded the characteristic so-called looking-glass tracings, and the other of dexiocardia, in which the electrocardiograms showed a preponderant curve of the right ventricular type). Of the remaining seventeen cases in which the existence of congenital heart disease or heart lesion was proved, in ten the electrocardiograms showed right ventricular preponderance, in two a left ventricular preponderance and in five the electrocardiograms were almost normal. The electrocardiographic method has not therefore an absolute value in the diagnosis of congenital heart disease in children. It is, however, a good adjuvant method in association with other modern methods of examination of the heart. The author considers that before the age of 3 months the right ventricular preponderance is normal and should not be taken into consideration in the diagnosis of heart diseases in younger infants.

Policlinico, Rome

37: 1377-1408 (Sept. 22) 1930. Practical Section

Treatment of Psoriasis. M. Monacelli.—p. 1377.
*Structure and Function of Cells of Tuber Cinereum. U. Poppi.—p. 1382.
Peculiar Syndrome Caused by Lymphosarcoma of Jejunum. F. Benedetti-Valentini.—p. 1383.

Structure and Function of Cells of Tuber Cinereum.—Poppi points out that the principal nuclei of the tuber cinereum contain a large amount of fat (consisting, in part, of lipoids), which causes the displacement of the chromatic substance. These cells contain in addition numerous siderophilous granules of a lipoid nature similar to those common to the cells of the hypophysis and the suprarenals. The author recalls the researches of Abel, Collin and Sato, respectively, who found in the tuber cinereum an active principle equal to that of the posterior lobe of the hypophysis, and raises the question whether these cells have a simple reservoir function or whether they have an endocrine function of their own.

37: 417-468 (Sept. 15) 1930. Surgical Section

*Radical Treatment of Cold Abscesses. F. Benedetti-Valentini.—p. 417.
*Congenital Stenosis of Pylorus. G. Guazzieri.—p. 432.
Accessory Pancreas: Two Cases. L. Sussi.—p. 448.
Epithelioma of Uterine Stump After Subtotal Hysterectomy for Fibromyoma. G. Zampa.—p. 457.

Radical Treatment of Cold Abscesses. — Benedetti-Valentini, after describing a case of primary tuberculosis of the costal cartilages, with a large cold abscess of the thoracic wall which he treated radically by subtotal chondrectomy and complete closure of the wound without drainage, expatiates on the pathology and therapy of these disorders.

Congenital Stenosis of Pylorus.—Guazzieri, after discussing congenital hypertrophic stenosis of the pylorus, describes the case of an infant with this disorder, who was operated on at the age of 30 days by means of gastro-enterostomy. He concludes that, while it is true that extramucosal pylorotomy may seem the operation of choice, gastrojejunostomy also will give excellent immediate and remote results in such cases.

Rivista di Clinica Medica, Florence

31: 781-832 (July 31) 1930

*Congenital Malformations of Duodenum and Their Clinical Importance. U. Polerà.—p. 781.
Fibrinous Pneumonia with a Protracted Course and Pulmonary Sclerosis. G. Nizzi-Nuti.—p. 788.

Congenital Malformations of Duodenum.—Polerà points out that it is necessary to keep possible malformations of the duodenum in mind more than is usually done; that in persons with a pain syndrome of the duodenum, when this is of old standing without the general condition of the patient having suffered much, and when it is impossible to invoke a gallbladder or pericholecystic lesion to explain the syndrome in question, it is well to consider the possibility of a malformation of the duodenum; that an inversion of the site of the spontaneous pain and, on palpation, of the picture of a duodenal lesion should awaken suspicion of malformation of the duodenum, and that the roentgen examination has in such a syndrome decisive importance, since it is the only way in which a sure diagnosis can be reached.

Boletín de la Soc. de Obst. y Ginec. de Buenos Aires

9: 245-292 (Sept. 10) 1930

*Intraligamentous Extra-Uterine Pregnancy with Living Fetus Complicating Ovarian Cyst. F. Tallaferro and E. Thwaites Lastra.—p. 245.
*Treatment of Genital Pruritus with Radioactive Mud. J. Iribarne and J. L. Sardi.—p. 259.

Extra-Uterine Pregnancy with Living Fetus Complicating Ovarian Cyst.—Tallaferro and Thwaites Lastra say that, in cases of extra-uterine pregnancy complicating an ovarian cyst, the factor which offers more difficulties for the surgeon and which endangers the patient's life is that related with the treatment of the placenta, especially when the pregnancy has advanced to near term. Removal of the placenta should be the treatment of choice. A good hemostasis should be secured before it is removed. In cases in which a satisfactory hemostasis cannot be obtained, a Mikulicz drain should be inserted. It has the double advantage of controlling hemorrhage and favoring the expulsion of retained placental fragments. If removal of the placenta may endanger the patient's life, the treatment used by American authors (in which the placenta is left, enclosed in the fetal cyst, the latter being closed and marsupialized) seems preferable. The results of this method, however, are not as yet well known. The publication of statistics, containing a larger number of cases than those which have been reported hitherto with this method, is advisable in order that its utility and importance can be evaluated. In the authors' case, the patient, aged 34, had had only one child, one year after her marriage. Since then she had acquired gonorrhea and had been sterile for fifteen years. During the previous seven months the patient had amenorrhea, interrupted at the second, third and fourth months by attacks of lypothymia, slight loss of blood through the genitalia, and pains (similar to those of labor). The severe attack which the patient presented on admission to the hospital was similar to the previous attack, though more intense. When a laparotomy was performed an intraligamentous extra-uterine pregnancy, complicating an intraligamentous ovarian cyst, was found. On the opening of the fetal cyst, a living fetus of normal weight, which lived for some hours, was delivered. It had a cranial deformity, polydactylism and ankylosis of the joints of the legs. The cyst and placenta were removed and a hysterectomy was performed. The patient recovered.

Treatment of Genital Pruritus with Radioactive Mud.—Iribarne and Sardi praise the therapeutic value of radioactive mud in the treatment of pruritus vulvae. It has a weak but constant analgesic action on chronic inflammatory processes and a stimulating action on the local vitality of the tissues. The radioactive substance is used in the form of a poultice in direct contact, through gauze, with the vulva. The poultice is applied when the patient retires and is held in place by means of a T bandage. The next morning the poultice is removed. The treatment is repeated for five consecutive nights. In cases observed by the authors (twelve patients, ages ranging from 28 to 51 years) the pruritus had lasted for from one year to ten years. Ten patients obtained a complete recovery from the treatment (one of this group was a diabetic patient). One of the patients improved and in one of them the treatment failed.

Archiv für Hygiene, Munich

104: 99-387 (Sept.) 1930. Partial Index

*Identification of Colorless Prodigiosus Bacilli. G. Schad.—p. 99.
*Tarred Streets as Cause of Cancer. K. B. Lehmann.—p. 105.
*Anthrax of Intestine in Man. N. Solowieff.—p. 132.
*Test for Respiratory Capacity. F. H. Lorentz.—p. 378.
*Mortar with Cellophane Guard. H. Dold.—p. 386.

Identification of Colorless Prodigiosus Bacilli.—Schad describes experiments in which he demonstrated that when prodigiosus bacilli lose their power to form pigments they do not lose their agglutination properties. Therefore agglutination tests may be used for the identification of colorless prodigiosus bacilli.

Tarred Streets as Cause of Cancer.—In determinations of the tar content of the air raised from tarred streets by the passage of automobiles over them, Lehmann found that during an eight hour ride approximately 10 meters behind an automobile on a tarred street only 1.5 mg. of tar passed off into the air. He believes that this amount is too small to make tarred streets a factor of any importance in the etiology of cancer either of the skin or of the lungs.

Anthrax of Intestine in Man: Pathologic Changes.—Solowieff reports the observations he made at the postmortem examination of twenty-two persons who had died from intestinal anthrax. It was noted that in cases in which malignant pustules of the skin had appeared first and had persisted for more than four days, lesions resembling carbuncles of the skin were found in the intestine. In seven of the twenty-two cases, lesions of this type were found in the mesentery of the small intestine and of the large intestine. Most of the lesions resembled a cherry in size and color and microscopically they were found to consist of a collection of leukocytes and erythrocytes (most of which showed degenerative changes) and large numbers of anthrax bacilli. In all the cases a condition resembling malignant edema of the skin was found in the intestine. The inflammation was usually of a phlegmonous nature and was always limited to a segment of the intestine from 10 to 12 cm.

long. This part of the intestine was always greatly thickened as a result of edema and a cellular infiltration; the edematous intestine and the peritoneum in its vicinity were dark red from a diffuse infiltration of blood. The cecum and the portion of the small intestine immediately adjacent to it were involved most frequently (twelve cases) and then followed the transverse colon (six cases), the ascending colon (two cases), the descending colon (one case), and the rectum (one case). In three of the cases there were also thickenings in the wall of the small intestine. In the cases of anthrax typhlitis the cecum was thickened and into its lumen projected a tumor resembling the cervix of the uterus. The cecal valve had disappeared in the enlargement and on the mucosa there were superficial ulcers the size of a pea. Some of the follicles were distinctly visible because of a moderate hyperplasia. The lymph nodes of the mesentery were usually enlarged in the region of the inflammation but not elswhere.

Test for Respiratory Capacity.—Lorentz states that from the practical standpoint enough information can be obtained concerning the respiratory capacity from the spirometric index. The size and expansion capacity of the thorax are not reliable as indicators of the respiratory capacity.

Mortar with Cellophane Guard.—For the safe pulverization of bacteria and irritant and poisonous substances, Dold recommends that a cellophane guard be placed over the mortar.

Deutsche medizinische Wochenschrift, Berlin

56: 1683-1724 (Oct. 3) 1930. Partial Index

Initial Insulin Hyperglycemia. A. von Korányi.—p. 1683.
Psychophysical Interrelation in Clinical Conditions. G. von Bergmann. —p. 1684.
Vitamin Reserve in Male and in Female Organism. E. Poulsson.—p. 1688.
Dynamics of Stomach. P. Klee.—p. 1689.
Modern Investigations on Small Intestine and Their Significance. Van der Reis.—p. 1691.
*So-Called Blue Reaction in Icterus. A. A. Hijmans van den Bergh, P. Muller and A. G. M. Verbeek.—p. 1693.
Pathogenesis of Cholangeitis. H. Jacoby.—p. 1695.
*Clinical Aspects of Duodenal Diverticulitis. H. U. Albrecht.—p. 1697.
Transition of Myxedema into Exophthalmic Goiter. E. Möller.—p. 1699.
*Electrolyte Composition of Blood in Case of Diabetes Insipidus. M. Gradwohl.—p. 1700.

So-Called Blue Reaction in Icterus.—Van den Bergh et al. direct attention to Brugsch's "blue reaction." Brugsch claims that the blue discoloration of the skin, noted in certain forms of icterus, following the intradermal injection of a small amount of a 1 per cent solution of potassium ferricyanide, is due to the presence in the skin of bivalent iron. Dietrich investigated Brugsch's theory and comes to the conclusion that the blue reaction is not due to the presence of bivalent iron but rather to the oxidation of bilirubin. The authors likewise investigated this problem and their observations corroborate Dietrich's claims rather than Brugsch's. Examination by an experienced microchemist, of a bluish discolored portion of the skin of a patient with icterus, did not reveal the presence of iron.

Clinical Aspects of Duodenal Diverticulitis.—Albrecht reports his observations on fifty patients with duodenal diverticula. The diverticula may be found on all parts of the duodenum; however, they are most frequent on the pars descendens and in the region of the papilla but are rarely found on the pars superior. While in congenital diverticula of the digestive tube usually all parts of the intestinal wall are involved, in acquired pulsion diverticula only the mucosa, submucosa and serosa are generally involved. Duodenal diverticula may be considered as acquired pulsion diverticula due to congenital predisposition. The author also discusses the roentgen diagnosis of duodenal diverticula. It is further pointed out that in many instances diverticula are entirely harmless, but, whenever the diverticulum shows a tendency for retention of foods, bacterial disintegration sets in and inflammations develop. The latter are often followed by hemorrhage, abscess, gangrene and perforation. Perforation in the neighboring tissues involves most frequently the pancreas. In many instances, pancreatitis is noted. The symptoms of the secondary diseases that develop from duodenal diverticulitis frequently predominate to such an extent that the causal diverticulum is overlooked. Disorders that may result from duodenal diverticulitis are duodenitis, gastritis, and, if the diverticulum is in the region of the papilla, frequently infections of the bile and pancreatic ducts. Regarding the therapy of duodenal diverticula, it is stated that those which have no disturbing effects do not require treatment. However, those which have a tendency to retention of foods require treatment. In the beginning internal therapy is usually attempted, but if the disorders recur frequently surgical treatment is advisable.

Electrolyte Composition of Blood in Case of Diabetes Insipidus.—In a case of this disease, a considerable increase in the potassium content of the blood and especially of the serum was noted by Gradwohl. The calcium content, however, showed a relative decrease and the sodium content a marked increase. The water resorption capacity of the normal erythrocytes was considerably increased. Under the influence of a preparation of the posterior lobe of the hypophysis, the potassium values returned to normal. On the other hand, the sodium content was somewhat increased. The normal erythrocytes in the serum of the patient with diabetes insipidus did not show an increased swelling. Tests on the electrolyte composition of the blood of patients without metabolic disturbances proved that the potassium and calcium values were not noticeably influenced by the injection of hormonal substances of the posterior lobe of the hypophysis.

Deutsche Zeitschrift für Chirurgie, Leipzig

227: 1-567 (Sept.) 1930. Partial Index

*Primary Treatment of Wounds. J. Hansen.—p. 17.
*Possibility of Exerting an Effect on Occurrence of Metastases in Cases of Intravenous Infections: Experimental Study. A. Läwen and W. Müller.—p. 27.
*Tumors: Spontaneous Healing: Cancer Cells in Circulating Blood: Metastasis of Benign Tumors: Biopsy. R. Hanser.—p. 59.
*Traumatic Arterial Aneurysm of Palmar (Volar) Arch. J. Volkmann. —p. 151.
*Local Recurrences of Breast Cancer: Analysis of Statistics. H. Schloffer. —p. 170.
*Surgical Treatment of Echinococcus Disease. M. Gerulanos.—p. 198.
*Results of Treatment of Gastric and Duodenal Ulcers by Means of Gastro-Enterostomy with Large Stoma. Reichel.—p. 223.
*Spontaneous Obliteration of Distal Portion of Intestine After Colostomy. A. Lewin.—p. 272.
*Roentgen Therapy of Hypertrophied Prostate. K. Braeunig and E. Gruhn.—p. 313.
*Implantation of Bone into Lower Jaw. G. Axhausen.—p. 368.
*Blood Transfusion: Safeguarding the Donor. G. Schöne.—p. 448.
*Local Amyloidosis of Brain a Late Result of Roentgen Irradiation of Temporal Region for Cancroid. A. W. Fischer and Holfelder.—p. 475.
*Anatomy of Gasserian Ganglion with Reference to Surgical Treatment of Trifacial Neuralgia. F. van Nouhuys.—p. 483.
*Surgical Treatment of Dupuytren's Contracture of Fingers. C. Ritter. —p. 544.

Primary Treatment of Wounds.—More than ten years of experience with the treatment of accidental wounds in a mining section, seeing from ten to fifteen new cases every day, Hansen says, has convinced Magnus's associates of the great value of excision and suture of every type of wound. Drainage is never employed. No especial effort is made to cleanse the area surrounding the wound; a local disinfectant is used; the edges of the wound are trimmed carefully and then sutured with thread, silk or catgut. A dry sterile dressing is applied and completes the operation. Of course, antitetanic serum is used freely.

Experimental Production of Metastases.—Läwen and Müller report on experiments made to produce metastases into joints by various mechanical measures, such as bandaging, the use of tourniquets, the intravenous injection of pathogenic bacteria and their toxins, and deprivation of vitamins in the food. All attempts to achieve the result aimed at were futile.

Effect of Biopsy on Malignant Tumors.—Hanser asserts that in cases of tumors a biopsy is often essential to making a diagnosis of malignancy. He denies that a malignant growth is ever induced by such a procedure. Often it is possible to remove a malignant tumor completely, without later recurrence, by such early diagnosis. Two instances are referred to in which a biopsy was done twice on a carcinoma and the tumor disappeared completely. The incidence of metastases is not increased.

Traumatic Arterial Aneurysm of Palmar Arch.—Volkmann relates two cases in order to call attention to the fact that heretofore such cases have probably escaped being detected. They comprise about 1 per cent of all aneurysms. The symptoms may not be helpful in arriving at a diagnosis. Sixty-seven cases already recorded in the literature are summarized.

Local Metastases in Breast Cancer.—Schloffer has been able to trace definitely 149 cases of breast cancer in which he operated at least five years ago. Of this number, 49.5 per cent of the patients succumbed to distant metastases. During the first five years, 2.6 per cent had local metastases; the same percentage had lenticular metastases; 6.1 per cent had axillary metastases and 7 per cent had metastases in the supraclavicular lymph nodes. He feels that some of these metastases could have been prevented by more extensive dissection of local tissues than was done. In several of the supraclavicular lymph node cases, internal metastases were also present. The only modification in the technic of operation, in his opinion, should consist in wider excision of the skin. No fear need be had that too much skin will be excised.

Surgical Treatment of Echinococcus Disease.—Gerulanos has observed 564 cases of echinococcus disease involving all the thoracic and abdominal organs (liver, 386 cases), the breast, thyroid, orbit, muscles, bones and spinal column. He describes the technic employed in various types of echinococcus cyst, stressing the importance of so-called primary suture, and that it is not necessary to drain. The essential point to bear in mind is early operation, as delay from day to day will increase the dangers of this infestation and militate against a favorable outcome.

Treatment of Gastric and Duodenal Ulcers.—Resection, in Reichel's opinion, should be the operation of choice. Gastroenterostomy, with a large opening on the posterior wall of the stomach, should be reserved for those in whom resection is contraindicated because of the existence of conditions in an individual which point to the exercise of caution in performing any surgical procedure.

Obliteration of Distal Portion of Bowel After Colostomy.—Lewin calls attention to the fact that after a colostomy has been done for a chronic ulcerous stenosing process of the rectum it is never necessary to resect the distal portion of the bowel because it will eventually obliterate itself completely by shrinkage. Equally important, therefore, is it never to close the colostomy opening. He cites in detail, including microscopic examination, the case of a woman who died twenty-four years after the colostomy operation and also cites briefly several similar cases recorded in the literature.

Roentgen Therapy of Prostatic Hypertrophy.—Braeunig and Gruhn advocate this treatment, with vasectomy, in these cases. They describe their technic. Even in cases with complete retention of urine and considerable damage of the kidney and severe degrees of infection of the urinary passages, a cure has been effected. Carcinoma of the prostate and adenoma of the isthmus which causes complete retention of urine are not cases suitable for this treatment. The authors have treated thirty-eight cases and present a brief summary of each.

Preliminary Transplantation of Bone.—Axhausen describes his experiences with the preliminary transplantation of bone into the lower jaw in cases demanding later resection of part of the jawbone. The transplant is buried in the soft parts of the jaw and sometime later—a month or more—the operation is performed on the jaw. At that time it is found that the transplant has become an integral part of the locale; it effectually resists infections and insures a satisfactory result. The method was described by the author in 1928. Now he reports a series of cases in which it was used in lower jaw cases; bone defects, osteomyelitis, lengthening of the lower jaw, tabetic defects with much scar tissue, and even fistulas.

Making Blood Transfusion Safe.—Schöne feels that failure to safeguard the donor has led to disastrous consequences. The position of donor and donee makes it possible for blood to spurt from the donee to the donor, leading to infection with syphilis or with bacteria or toxins contained in the blood of the former. He urges that they should not be permitted to lie in contact or even close to each other. Oehlecker's method is preferred over others.

Amyloidosis of Brain Caused by Roentgen Ray.—Fischer and Holfelder report the case of a man who had received many treatments with the roentgen ray in the course of two years for a cancroid on the temple without effecting a cure. After three years the ulcer was excised and the defect covered with a skin flap. Except for this, he had always been a strong, healthy man. About five years after he had been subjected to the roentgen treatment he had thermic sensory disturbances, became restless, perspired a great deal, had a numb feeling in the left hand and sometimes cramps, also in the left leg. Eventually he had attacks of aphasia lasting five or ten minutes, recurring two or four times a week. A brain metastasis from the original cancroid was suspected. Finally, the brain was exposed in the temporal zone. A piece of it was excised and on examination proved to contain areas of amyloid degeneration. In view of the absence of any recurrence of the cancroid in the skin, the underlying bone, the meninges or the brain, the authors believe that they are justified in concluding that the roentgen ray was responsible for the development of amyloid disease.

Anatomy of Gasserian Ganglion.—On the basis of his anatomic study of this ganglion, van Nouhuys asserts that Frazier's method of subtotal resection of the sensory root is not a reliable radical operation because, if one third of this root is conserved, assurance is not had that it does not contain fibers going to the maxillary or the mandibular roots, which would make a recurrence possible.

Surgical Treatment of Dupuytren's Contracture of the Fingers.—Ritter describes his technic, which consists of making a number of small transverse incisions by means of which tendons are lengthened without being first completely divided and reunited. It is a conservative rather than a radical operation; it is not mutilating and is very effective.

Strahlentherapie, Berlin

38: 1-198 (Sept. 27) 1930

Effect of Roentgen Rays on Nuclear Division in Roots of Beans. O. Jüngling and H. Langendorff.—p. 1.
Comparison of Biologic Action of Roentgen Rays and Gamma Rays. R. Braun.—p. 11.
Changes Produced in Skin by Different Amounts of Rays from Various Kinds of Radium Containers. A. Reisner.—p. 19.
*Action of Roentgen Irradiation on Regulation of Blood Sugar. A. Held. —p. 27.
*Blood Pressure Variations Following Roentgen Irradiations, and Their Clinical Significance. H. Pausdorf and W. Nell.—p. 40.
Influence of Air Pressure on Development of Erythema and Pigmentation in Skin. F. Schmidt-Labaume and E. Uhlmann.—p. 54.
Intensification of Action of Roentgen Rays by Secondary Radiation. P. Ellinger and E. Gruhn.—p. 58.
Sensitizing Action of Hematoporphyrin with Regard to Roentgen Rays. N. A. Podkaminsky.—p. 98.
*Sarcoma of Uterus: Roentgen Treatment. A. Béclère.—p. 113.
Combined Treatment of Malignant Tumors with Naphthylpararosaniline and Roentgen Irradiation. H. Cramer.—p. 123.
*Lymphogranulomatosis: Roentgen Treatment. H. U. Billich.—p. 141.
*Idem. M. ten Doornkaat-Koolman.—p. 147.
*Agranulocytic Angina: Roentgen Treatment. F. Burgheim.—p. 152.
Roentgen Tubes with Complete High Tension Protection up to Two Hundred Kilovolts. A. Bouwers.—p. 157.
Superficial Treatment Apparatus with Constant Radiation. W. H. Boldingh.—p. 165.
Sabouraud-Noiré Dosimeter. K. Hoede.—p. 173.
Standardization of Roentgen Dose Unit. T. C. Neeff.—p. 177.
Necessity for Statement of Exact Dosage in Articles on Treatment with Infraroentgen Rays. O. Gfrörer and H. Berger.—p. 184.
Sources of Danger in Roentgen Treatment of Skin Diseases. D. von Kéméri.—p. 187.
File for Storage of Roentgen Films. A. Giebmanns.—p. 196.

Action of Roentgen Irradiation on Regulation of Blood Sugar.—According to Held, a differentiation must be made between the general action of roentgen irradiation on the regulation of blood sugar and the direct action on the transformation of sugar in the irradiated area itself. In experiments on rabbits and dogs he found that the general action of roentgen rays on the blood sugar regulation, which is manifested by hyperglycemia, is caused by the products of the roentgen reaction. This was demonstrated by the appearance of hyperglycemia in animals following the reinjection of irradiated blood. The causal factors are to be sought in the increased hydrogen ion concentration, the transmineralization and the denaturation products of protein. The direct action of the rays was studied by a comparison of the capillary and venous blood sugar in an irradiated and in a nonirradiated posterior extremity. It was shown that muscle cells also may participate actively in the blood sugar regulation. In the absorption area of the rays there occurred a relative hypoglycemia caused by a direct reaction to the rays.

Blood Pressure Variations Following Roentgen Irradiations, and Their Clinical Significance.—Pausdorf and Nell state that the blood pressure variations that occur immediately after a roentgen irradiation are to be separated etiologically from the variations that occur from twenty-four to forty-eight hours later. Although the former are irregular and variable, the latter follow a definite wave-shaped course that is repeated after from twenty-five to thirty-five days and after from fifty to seventy days. The decrease in the blood pressure is not caused by the action of the roentgen rays on the suprarenals but is the expression of a general reaction caused by marked cellular degeneration and by the hyperirritability of the vasodilator apparatus.

Sarcoma of Uterus: Indications for Roentgen Treatment.—In sarcoma of the uterus, Béclère recommends postoperative roentgen irradiations as a prophylactic measure to prevent recurrences. As a palliative measure roentgen irradiations are indicated in all inoperable cases, in all cases in which operation is contraindicated or is refused by the patient, in all cases of recurrence and in all cases of metastases, regardless of their location.

Lymphogranulomatosis: Roentgen Treatment.—Billich thinks that in the past the doses of roentgen rays used in the treatment of lymphogranulomatosis have been too large. In the treatment of thirty-one persons with this condition he obtained good results with minimal doses of roentgen rays. In cases in which the lymph nodes are soft, only from 20 to 30 per cent of a unit skin dose is used. By the use of such small doses both intense decomposition of protein with its accompanying disturbances and injuries of the skin are avoided. As routine treatment a radiation of medium hardness of from 170 to 180 kv. and 5 milliamperes through a zinc filter 0.5 mm. thick and an aluminum filter 1 mm. thick at a focal distance of 30 cm. is used. As adjuvant treatment, intravenous injections of thoron may be given.

Lymphogranulomatosis: Roentgen Treatment.—Doornkaat-Koolman reports a case of lymphogranulomatosis in a boy, aged 11, who came under observation in 1924 with enlarged lymph nodes in the occipital region, neck, inguinal region and in the region of the hilus of the lung. The treatment consisted of four series of high voltage roentgen irradiations that were given from June, 1924, to May, 1925, and of repeated sojourns in high mountains. Since the beginning of 1926 the patient has been completely cured clinically; his physical development has been excellent and he has been able to lead an active life.

Agranulocytic Angina: Roentgen Treatment.—For the treatment of agranulocytic angina, Burgheim recommends irradiation of the bone marrow in a large number of the long bones with small doses of hard, filtered roentgen rays.

Wiener klinische Wochenschrift, Vienna

43: 1217-1244 (Oct. 2) 1930. Partial Index

Duration of Pregnancy in Forensic Medicine. K. Meixner.—p. 1217.
Significance of Movement for Mental Hygiene in the United States of North America. O. Kauders.—p. 1223.
*Embolism of Renal Vessels Caused by Cancer Tissue. E. Froewis.—p. 1227.
Situs Viscerum Inversus Totalis. W. W. Weinberg.—p. 1230.
Congenital Tuberculosis. M. Zarfl.—p. 1231.
*Eye Diseases During Childhood. K. Safar.—p. 1232.

Embolism of Renal Vessels Caused by Cancer Tissue.—Froewis describes the case of a woman, aged 58, who had cancer of the rectum. Because the growth was inoperable, the surgical treatment was limited to the formation of an artificial anus. The cancer perforated into the vagina and the patient died sixteen days after the operation. The necropsy revealed, besides the squamous cell epithelioma in the rectum, metastases in the lungs, liver, spleen and suprarenals. The kidneys were of normal size but section revealed that the lumen of numerous vessels and of the glomeruli were thrombosed by cancer tissue. Otherwise the kidneys were free from metastases. This case proves that cancer cells may be carried into the glomeruli, and it is probable that these cells lead to the development of renal metastases.

Eye Diseases During Childhood.—Safar discusses the causes and treatment of eye diseases that occur during childhood. He mentions suppurative conjunctivitis of the new-born and dacryocystitis. Malformations such as anophthalmos, microphthalmos, colobomas of the iris and of the choroid, and ectopia lentis with tremulous iris, the physician should recognize, although treatment is not possible. However, the recognition of a cataract is significant because an operation should be performed as soon as the general condition of the child permits it. Glaucoma may also occur during childhood, and it is usually accompanied by enlargement of the eyeball. In such cases, early operation can check the further enlargement of the eye and the impairment of the vision. The author further discusses glioma of the retina, acute conjunctivitis, membranous conjunctivitis, paralysis of accommodation, blepharitis in scrofulous children, suppuration of the lacrimal sac, eczematous inflammation of the eye and interstitial keratitis. Of the diseases of the fundus oculi he mentions retinitis pigmentosa, and the ocular disorders in children with amaurotic family idiocy. In children with oxycephaly or with other cranial deformities there sometimes exists choked disk or atrophy of the optic nerve. In cases of rickets, tetany and diabetes, cataract formation is frequent. The author discusses also strabismus and refraction anomalies.

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*Differential Diagnosis and Treatment of Early Tuberculous Infiltrates. Dorendorf.—p. 1.
Duration of Early Infiltrate and Its Disintegration. K. Siegfried.—p. 12.
Calcification of Pleura. F. Oldenburg.—p. 18.
Bilateral Filling of Pulmonary Cavities. G. Frischbier.—p. 29.
*Particular Reaction in Cases of Tuberculous Reinfection. E. A. Schnieder.—p. 33.
Needle for Intrathoracic Injections. A. Milko.—p. 35.

Differential Diagnosis and Treatment of Early Tuberculous Infiltrates.—Roentgenograms of an acute or chronic, indurated pneumonia, bronchopneumonia, postpneumonic sequelae and atelectatic pulmonary areas with peribronchial or endobronchial foci may appear identical with those of a perifocal inflammation. Roentgenograms of circumscribed early tuberculous foci may resemble those of tumors or their metastases. The differential diagnosis is based on the outline of the tumor and on the age of the patient. Tuberculous infiltrates located in a pulmonary lobe must be differentiated from lobar carcinoma. A pulmonary abscess or a circumscribed gangrenous focus of the lung may occasionally be mistaken for a nontuberculous perifocal inflammation. Examination of the sputum and the course of the disease are important in the differential diagnosis. The prognosis of an early infiltrate is favorable when the treatment starts in the beginning of the disease. In most of the cases observed, the diagnosis was not made before a pulmonary cavity developed. Rest treatment, continued for weeks, may suffice in the beginning when there is a tendency to resorption and cicatrization. Any irritative therapy is contraindicated. Artificial pneumothorax is the method of choice in cases in which disintegration of the infiltrate occurs. The treatment was followed by a rapid improvement of the pulse and by a decrease in the fever. Expectoration was frequently reduced one or two months after the beginning of the treatment. Gradual slowing of the accelerated sedimentation of the blood, favorable changes in the leukocyte picture and gain in body weight were recorded in all patients treated with pneumothorax. The latter was usually continued for from one to one and one-half years; in only a few cases was the duration of the treatment considerably reduced. The treatment was continued for at least six months after the general condition became good and the blood reaction and roentgenograms became normal. The treatment proved effective in patients with an advanced pulmonary cavity. Serous exudate was found in 30 per cent of advanced cases in which extensive metastases were present; purulent exudate was not observed. In three instances there was distortion of the mediastinal organs; in one, it was associated with slight circulatory disturbances. An active process developing on the other side could in the beginning be arrested by absolute rest in bed. If not, pneumothorax was induced and that on the other side was discontinued when fever and bacilli had disappeared for months. Otherwise there was a pneumothorax on each side. An easy occupation could often be resumed a few months after the beginning of the pneumothorax. Observation was continued for years after the pneumothorax had been discontinued. Dorendorf

induced pneumothorax in ninety-four patients with an early tuberculous infiltrate. Forty-four were reexamined. Twenty-four apparently recovered; they were able to resume their occupation; in the remainder, the improvement was notable.

Study of Experimental Tuberculous Reinfection.—Schnieder's experiments were conducted on rabbits. The reinfection as well as the infection was practiced in the animal's cornea. About 0.002 mg. of B C G vaccine was used for the infection and 0.0000017 mg. (about 800 bacilli) for the reinfection. The interval between the complete healing of the corneal tissue after the first infection and the reinfection was from 280 to 290 days. In three instances, the tissue reactions were similar to those observed on transformation of an early infiltrate in a cavity. In others the reactions resembled those observed on formation of an early infiltrate. In most of the animals, the infection remained latent for seventeen days. Then the infectious process developed gradually. In the first three animals, infiltration of the reinjected tissue appeared the first day; the necrotic infiltrate was eliminated on the sixth day. A holelike defect of the cornea resulted; it was followed by protrusion of the contents of the eye. In two instances there was a secondary infection and destruction of the eye. In the third instance, the corneal defect soon became filled with a new tissue; the form of the cornea was restored within thirty days. At the same time, the controls developed a progressive tuberculosis of the eye. The results tend to explain why tissue reactions sometimes result in an infiltration alone, while sometimes the latter develops into a cavity. Allergy and immunity do not appear simultaneously in the infected area and in the whole organism; namely, first local allergy and then local immunity develop; general allergy and general immunity appear later. Moreover, the local allergy and the local immunity persist longer than the general allergy and the general immunity. At the end of an infection, allergy persists after immunity has disappeared; it persists longer in the local focus than in the whole organism. The allergy may sometimes prove to be sufficient in the defense against tubercle bacilli as it is against other bacilli. Otherwise, there is formation of a sequestrum and an early cavity develops.

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73: 399-510 (Sept. 27) 1930

Bigeminal Rhythm of Entire Heart: Case. K. Weber.—p. 399.
*Effect of Intravenous Injection of Insulin on Blood Sugar Curve. T. E. Hess Thaysen.—p. 408.
Coronary Circulation and Thrombosis of a Coronary Artery. E. J. Warburg.—p. 425.
Cerebral Syndrome of Abdominal Muscles. E. Wallgren.—p. 460.
Elephantiasis of Leg: Case. E. Wallgren.—p. 466.
*Effect of Intravenous Injection of Insulin on Gastric Secretion. K. Roholm.—p. 472.
Pneumothorax: Pathology and Physiology of Lung. A. F. Lindblom.—p. 493.

Effect of Intravenous Injection of Insulin on Blood Sugar Curve.—Hess Thaysen studied the blood sugar curve of twenty-one persons with diabetes mellitus following the intravenous injection of 12 units of insulin. He noted that in the mildest cases the assimilation line showed the normal steep, almost straight fall, most often from a hyperglycemic value to the lowest blood sugar value, and this was followed (usually at an acute angle) by the ascending or restoration line. In the more severe cases the assimilation line began as a steep fall, sometimes from a high hyperglycemic value, and continued then as a less rapid fall to the lowest point in the blood sugar curve. When the fasting blood sugar was brought down toward the normal limit in such cases, the first fall in the assimilation line was less pronounced and the difference between the assimilation lines of diabetic persons and of normal persons became more pronounced because of the less abrupt fall in the assimilation line of the former. In the most severe cases the first, rapid fall from a hyperglycemic value was replaced by a more slowly falling, slanting line that was followed by a gently sloping arched line that continued to the lowest point of the assimilation line. Frequently in the severe cases and less frequently in the moderately severe and mild cases there were irregularities in the course of the assimilation line in the form of a sudden, steep but brief rise followed by a sudden fall. In mild cases the restoration line did not differ essentially from the one seen in normal persons. It had a distinct primary and secondary rise but it never reached the original blood sugar value within the examination period. In the moderately severe cases, as a rule, the rise in the restoration line was less pronounced and a distinction between the primary and secondary rises was occasionally absent. This was true particularly in the severe cases. The restoration line sometimes showed irregularities in its course, as a sudden rise followed by a sudden fall.

Effect of Intravenous Injection of Insulin on Gastric Secretion.—Roholm studied the gastric secretion of nine normal persons as controls and of sixteen normal persons following the intravenous injection of 12 international units of insulin. It was noted that insulin stimulated the gastric secretion quantitatively and qualitatively. The amount of gastric juice was increased every ten minutes from 10 or 12 cc. to 16 or 18 cc. A smaller increase during the first twenty minutes of the experiment was replaced by a brief fall; this was followed by a greater increase that began about thirty minutes after the injection and reached its maximum from fifty to sixty minutes after the injection. From then on there was a gradual fall until the end of the experiment. Examination of the gastric juice with regard to its acidity revealed that during the first twenty-five minutes following the intravenous administration of insulin there was a slight primary rise that was followed by a fall. After about thirty minutes there was a marked and rapid rise in the acid production until the maximum was reached (about sixty minutes after the injection), corresponding with phenolphthalein values of from 100 to 140. Then the acidity fell slowly and two hours and ten minutes after the injection it had returned to normal. The pepsin content of the gastric juice following the intravenous injection of insulin showed an increase that was concurrent with the increase in its amount and acidity. Individual variations in the pepsin content, however, were far greater than the variations in the acidity, which is consistent with the well known fact that there is not a constant parallelism between the acid and the pepsin secretion of the stomach.

Hospitalstidende, Copenhagen

73: 825-836 (Aug. 14) 1930

*Treatment of Pernicious Anemia with Dried Stomach. S. A. Holbøll.—p. 825.
*Treatment of Ileus with Hypertonic Solution of Sodium Chloride. E. Schnohr.—p. 831.

Treatment of Pernicious Anemia with Dried Stomach.—Holbøll finds that the results of this treatment correspond to those obtained by treatment with liver. The rise in the hemoglobin percentage and erythrocyte count in two cases described was rapid and marked, while the increase in the number of reticulocytes was not on the same scale as in liver treatment. On termination of the reticulocyte reaction due to the stomach preparation, treatment with liver extract did not cause a new reticulocyte reaction, showing that the active principle in the stomach is identical with the active principle in the liver.

Treatment of Ileus with Hypertonic Solution of Sodium Chloride.—Schnohr says that in high ileus a syndrome consisting of hypochloremia, azotemia and alkalosis has been established experimentally and often clinically. He reports four cases with symptoms of ileus in which the abundant administration of sodium chloride in the form of injections of a hypertonic solution resulted in the restoration of peristalsis in all the patients, two of whom recovered.

73: 849-876 (Aug. 28) 1930

*Results of Suture Method in Treatment of Perforated Gastric Ulcer. P. Kühnel.—p. 849.
Reaction to Cold in Surgical Tuberculosis of Extremities. J. Foged.—p. 862.

Results of Suture Treatment in Perforated Gastric Ulcer.—Kühnel reports that, of twenty-eight patients operated on by this method and examined after from two to sixteen years, 68 per cent are able to work and 32 per cent are but slightly improved or unimproved. He emphasizes the importance of long-continued medical after-treatment.

73: 877-904 (Sept. 4) 1930

*Pulmonary Tuberculosis in Perihilus Region in Adults. K. Faber.—p. 879.

Pulmonary Tuberculosis in Perihilus Region in Adults.—Faber reports eight cases to illustrate the manner in which infiltrations in this region most often appear and develop, and discusses the diagnosis, prognosis and treatment.